

2001



ecology and environment, inc.

International Specialists in the Environment

SFUND RECORDS CTR
2388327

350 Sansome Street #300,
San Francisco, California 94104
Tel: (415) 981-2811, Fax: (415) 981-0801

MEMORANDUM

TO: Rachel Loftin, USEPA Region 9 *for 8-12-98*

FROM: James James, Ecology and Environment, Inc. START

SUBJECT: Completed Work

DATE: August 7, 1998

cc: Karen Nelson, Project Officer

Attached is the following completed document:

PA ☐ SI ☐ Other Expanded Site Inspection

Site Name: Victoria Golf Course

EPA ID: CAD980818926

City, County, State Carson, Los Angeles, CA

*** For USEPA Use Only ***

Latitude: 33°51'26.0"N Longitude: 118°16'22"W

CERCLIS Data Changes: _____

EPA Decision: ESI Complete "G" (recommend ESI-II as next step)

Archive Site: ☐ yes ☒ no

If yes, is another program involved? ☐ yes ☐ no

Other program(s): _____

Lead Agency: S

Approval of Site Assessment Manager RN Loftin

Sign Off Date 8-18-98

Document Screening Coordinator _____

Chief, States, Planning and Assessment Office _____

REMEDIAL SITE ASSESSMENT DECISION - EPA REGION 9

Site Name: Victoria Golf Course

EPA ID #: CAD980818926

Alias Site Names: _____

City: Carson

County or Parish: Los Angeles

State: California

Report Dated: August 1998

Report Type: Expanded Site Inspection

Report developed by: Tom Genolio, Ecology & Environment, Inc.

DECISION:

☐ 1. Further Remedial Site Assessment under CERCLA (Superfund) is not required because:

- ☐ 1a. Site does not qualify for further remedial site assessment under CERCLA (No Further Action - NFA) and:
- ☐ EPA is retaining this site in CERCLIS because the Federal Superfund program still has an interest in the site.
- ☐ EPA is archiving this site in CERCLIS because it does not warrant Federal Superfund action, or an appropriate Federal Superfund response action has been completed. This means that EPA believes no further Federal Superfund response is appropriate. Archived sites may be returned to the CERCLIS site inventory if new information necessitating further Federal Superfund consideration is discovered.

☐ 1b. Site may qualify for further action, but is deferred to: ☐ RCRA ☐ NRC

☒ 2. Further Assessment Needed Under CERCLA

2a. (Optional) Priority:

☐ Higher

☐ Lower

2b. Activity Type

☐ PA

☐ SI

☒ ESI

☐ HRS evaluation ☐ Other _____

8/18/98 Design for F&E add'l sampling R

Hold off on ESI I.

DISCUSSION/RATIONALE:

Site requires soil sampling at depths below 20' bgs and groundwater sampling at depths below 75' bgs. Groundwater shows vinyl chloride; 1,2 DCE; 1,2, DCA; and TCE greater than MCLs at 75' bgs. However, there is a regional VOC groundwater problem in the immediate vicinity of this property.

Report Reviewed,
Approved and Site

Decision Made by: R. L. Ostrin

Signature: R. L. Ostrin

Date: 8-18-98



ecology and environment, inc.

International Specialists in the Environment

350 Sansome Street #300,
San Francisco, California 94104
Tel: (415) 981-2811, Fax: (415) 981-0801

8-18-98
Assign to
EPA E. San
addi -
sampling
R

July 28, 1998

U.S. Environmental Protection Agency
75 Hawthorne Street
San Francisco, CA 94105

START#: 099701-012
TDD#: 09-9705-0013
PAN#: 0191DTTGXX

Attention: Karen Nelson, Project Officer

Subject: Victoria Golf Course Site, Los Angeles County, California

Attached is Ecology and Environment, Inc.'s Superfund Technical Assessment and Response Team (START) Expanded Site Inspection (ESI) Report for the Victoria Golf Course site. This report is based upon an investigation conducted by the California Department of Toxic Substances Control (DTSC) in 1996. DTSC prepared an ESI report for the site which the START reviewed in 1997. DTSC responded to the ESI review, but a number of issues and errors remained. Upon consultation with Rachel Loftin, START was directed to revise the ESI report rather than review the DTSC report again. The START had no role in scoping or implementing the investigation and had to rely on data as provided by DTSC or available from other agencies. As such, the START can't assure the validity or accuracy of all information presented.

If you have any questions regarding this ESI Report, please do not hesitate to contact me.

Respectfully submitted,

Jim James
Superfund Technical Assessment and Response Team Member

Attachment

copy: Rachel Loftin, EPA Task Monitor

Expanded Site Inspection Report

Victoria Golf Course Los Angeles, California

**Prepared for:
U.S. Environmental Protection Agency
Region 9
Contract No. 68-W6-0010
TDD No.: 099705-013**

August 1998

**Prepared by:
Superfund Technical Assessment and Response Team
Ecology and Environment, Inc.**

Superfund Technical Assessment and Response Team

**Expanded Site Inspection
Victoria Golf Course
Los Angeles County, California**

TDD#: 099705-013
PAN#: 0191DTTGXX

Submitted to:

Karen Nelson
Project Officer
U.S. Environmental Protection Agency
Region 9 - Planning and Assessment Section

Contract No. 68-W6-0010

Prepared by:

START
Ecology and Environment, Inc.

August 1998

Table of Contents

Section	Page
1 Introduction	1-1
1.1 Apparent Problem	1-2
2 Site Description and History	2-1
2.1 Location	2-1
2.2 Site Description	2-1
2.3 Operational History	2-3
2.4 Regulatory Involvement	2-4
2.4.1 United States Environmental Protection Agency	2-4
2.4.2 California Environmental Protection Agency	2-4
2.4.2.1 Department of Toxic Substances Control	2-4
2.4.2.2 Regional Water Quality Control Board	2-5
2.4.3 County of Los Angeles	2-5
2.4.4 South Coast Air Quality Management District (SCAQMD) ..	2-5
3 Summary of Investigative Efforts	3-1
3.1 Investigation by Potentially Responsible Party	3-1
3.2 Investigations by EPA	3-2
4 Hazard Ranking System Factors	4-1
4.1 Sources of Contamination	4-1
4.2 Groundwater Pathway	4-1
4.2.1 Hydrogeological Setting	4-1
4.2.2 Groundwater Targets	4-3
4.2.3 Groundwater Pathway Conclusion	4-5
4.3 Surface Water Pathway	4-5
4.4 Air and Soil Exposure Pathway	4-5
5 Emergency Response Considerations	5-1
6 Summary	6-1

Table of Contents (Continued)

Section

Appendix

- A References
- B Validated Data
- C Contact Log

List of Tables

Table	Page
3-1 Soil Sample Results	3-4
3-2 Groundwater Sample Results	3-6
4-1 Water Purveyors and Wells Within 4 Miles of the Victoria Golf Course	4-4

List of Illustrations

Figure	Page
2-1 Site Location Map	2-2
3-1 Sampling Locations	3-3

List of Acronyms and Abbreviations

BEI	Bechtel Environmental, Inc.
bgs	below ground surface
BKK	Ben K. Kazarian
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act of 1980
CERCLIS	Comprehensive Environmental Response, Compensation, and Liability Information System
CLP	Contract Laboratory Program
DCA	dichloroethane
DCE	dichloroethene
DPR	Los Angeles County Department of Parks and Recreation
DPW	Department of Public Works
DTSC	California Environmental Protection Agency Department of Toxic Substances Control
E & E	Ecology and Environment, Inc.
EPA	U.S. Environmental Protection Agency
ESAT	EPA's Environmental Services Assistance Team
ESI	expanded site inspection
HRS	Hazard Ranking System
MWD	Metropolitan Water District
µg/L	micrograms per liter
mg/kg	milligrams per kilogram
PA	Preliminary Assessment
PCE	tetrachloroethene
ppb	parts per billion
ppm	parts per million
RWQCB	Regional Water Quality Control Board
SCAQMD	South Coast Air Quality Management District
SI	Site Inspection
SIP	Site Inspection Prioritization
START	Superfund Technical Assistance and Response Team
SVOC	semi-volatile organic compound

List of Acronyms and Abbreviations (cont.)

SWAT Solid Waste Assessment Test

TCE trichloroethene

VGC Victoria Golf Course

VOC volatile organic compound

1

Introduction

EPA

U.S. Environmental Protection Agency

CERCLA

Comprehensive Environmental Response, Compensation, and Liability Act of 1980

DTSC

California Environmental Protection Agency
Department of Toxic Substances Control

ESI

expanded site inspection

VGC

Victoria Golf Course

CERCLIS

Comprehensive Environmental Response, Compensation, and Liability Information System

E & E

Ecology and Environment, Inc.

PA

Preliminary Assessment

SI

Site Inspection

SIP

Site Inspection Prioritization

The U.S. Environmental Protection Agency (EPA), Region 9, under the authority of the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA) and the Superfund Amendments and Reauthorization Act of 1986, tasked the California Environmental Protection Agency Department of Toxic Substances Control (DTSC) to conduct an expanded site inspection (ESI) of the Victoria Golf Course (VGC) site in Carson, Los Angeles County, California.

The VGC site was identified as a potential hazardous waste site and entered into the Comprehensive Environmental Response, Compensation, and Liability Information System (CERCLIS) on June 1, 1981 (CAD 980818926). The site was entered into CERCLIS based on suspected gas releases noted by city inspectors, a referral of the site in 1981 from the California Integrated Waste Management Board to the EPA Open Dump Inventory list, and a subsequent listing in federal Environmental Protection Agency programs.

DTSC conducted a field sampling effort to gather data as part of an ESI under the CERCLA, or Superfund. The ESI builds on the body of information obtained during the Ecology and Environment, Inc., (E & E) Preliminary Assessment (PA), dated August 1, 1984, and Screening Site Inspection (SI), dated June 22, 1989, and a Site Inspection Prioritization (SIP) dated March 23, 1994 conducted by Bechtel Environmental, Inc. (BEI). As part of this ESI, the DTSC collected additional data by conducting a site reconnaissance visit and collecting physical environmental samples to analyze for the presence of hazardous substances.

Field sampling was conducted under field sampling plan protocols. Laboratories participating in the EPA Contract Laboratory Program (CLP) were used for analyses. Laboratory services were obtained and coordinated through the EPA Quality Assurance Management Section. Subsequent to ESI field activities, the DTSC prepared a draft ESI Report. The EPA then tasked E & E's Superfund Technical Assistance and Response Team (START) to complete this ESI Report.

1.1 Apparent Problem

There are two apparent problems on site:

BEI
Bechtel Environmental,
Inc.

CLP
Contract Laboratory Pro-
gram

START
Superfund Technical As-
sistance and Response
Team

- Historic deposition of wastes into an unlined landfill beneath the VGC site has caused groundwater contamination. Vinyl chloride, tetrachloroethene, dichloroethene, and chlorobenzene were detected at elevated levels in groundwater samples collected downgradient of the site and compared to those collected upgradient of the site.
- Although sampling was limited to the shallow aquifer, which is not used for drinking, the shallow aquifer is interconnected with deeper drinking water aquifers.

2

Site Description and History

2.1 Location

The VGC site is located at 340 East 192nd Street in Carson, California. The geographic coordinates of the site are 33° 51' 26.0" N latitude and 118° 16' 22" W longitude (Township 4 South, Range 13 West, Section 5, Mount Diablo Baseline and Meridian, Torrance Quadrangle, Calif., 7.5-minute quadrangle). The site location is shown in Figure 2-1.

The VGC site is bordered on the north by single-family dwellings, the remaining portion of the Victoria Regional Park, and the Towne Avenue Elementary School. To the west of the site is an area of light industry and the Goodyear Airship Operations. To the east of the site are single-family dwellings and California State University at Dominguez Hills. The VGC site is bisected by the 405 Freeway and the unlined, earthen Dominguez Channel (see Figure 2-1). The concrete-lined Del Amo Channel borders the southern portion of VGC along Del Amo Boulevard.

2.2 Site Description

The VGC site occupies 348 acres in a mixed recreational, commercial, residential, and industrial area. The site is a former landfill that is now closed and occupied by VGC, a portion of the Victoria Regional Park (L.A. County), Dominguez Golf Center, Goodyear Airship Operations, Jael Farms, and the 65-unit Don Dominguez Apartments. This entire site is called the Victoria Golf Course site, although the "Victoria Golf Course" recreational business is only a portion of the whole site.

Both golf courses have small clubhouse and restaurant buildings; the Dominguez Golf Center also has two-story, covered tee-boxes for the driving range. The Goodyear Airship operations has a single-story office/maintenance building and

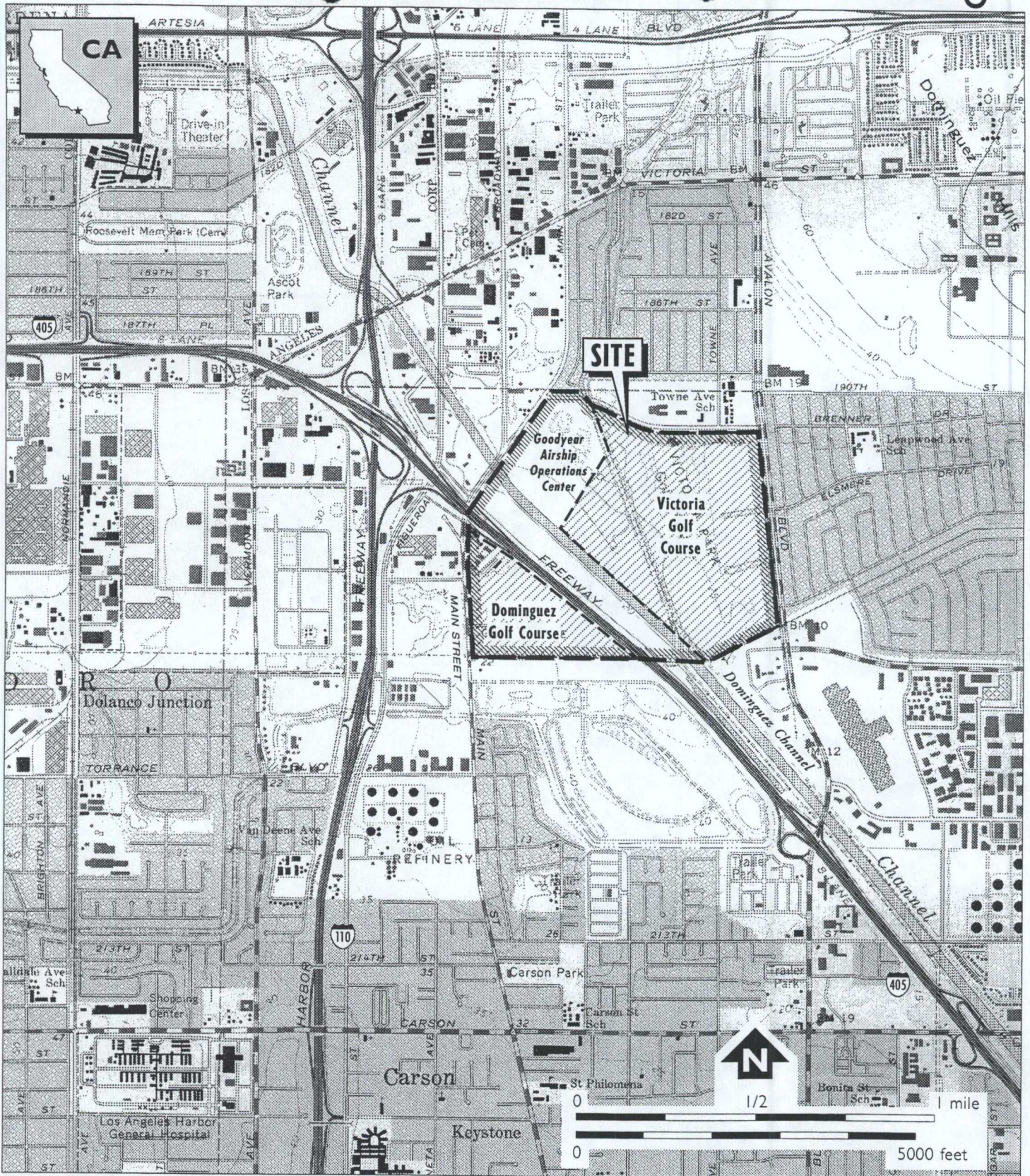


Figure 2-1

SITE LOCATION MAP
Victoria Golf Course Site
 Carson, California



2. Site Description and History

another trailer used for offices. The Don Dominguez Apartments is a 65-unit, three-story building with a pool and covered parking area. The county park has a small, single-story office building.

2.3 Operational History

BKK
Ben K. Kazarian

DPR
Los Angeles County Department of Parks and Recreation

The VGC site was developed over the former Ben K. Kazarian (BKK) Carson Dump, a Class II and III cut-and-cover landfill that operated from 1948 to about 1959. The BKK Carson Dump accepted municipal, household, commercial, and hazardous wastes, including liquid and semi-liquid hazardous wastes. Substances that could be dumped on site were not regulated. There are no records of what was actually dumped; there are only records of what was permitted.

In a December 6, 1955 correspondence, the BKK Landfill was also identified as the Main Street Dump, and was located east of Main Street on the south side of the Dominguez Channel, an area which is now the VGC site. This land was owned by the Dominguez Land Company and was used as a public dump under lease to the BKK Corporation from 1953 until 1955.

The County of Los Angeles acquired approximately 209 acres of land (now designated as Victoria Regional Park) from the Dominguez Estates Company in 1957. The 200-acre VGC is owned by the County of Los Angeles Department of Parks and Recreation (DPR), and has been leased and operated by the Arnold Palmer Golf Management Company since 1957. A portion of the Victoria Regional Park consists of tennis courts, picnic area and park grounds; the remaining area is open space and ball fields, which are covered with grass.

The Dominguez Golf Course is owned by the Watson Land Company and the Dominguez Properties, and is leased and operated by the American Golf Corporation, C.W. Partners. The Dominguez Golf Center includes a restaurant/pro shop, golf course, practice range, and grounds-keeping area. The parking lot, walkways, and golf cart paths are primarily paved with asphalt. The remainder of the driveways, paths, and bases are made of concrete. The golf-playing areas are grass-covered.

Goodyear Airship Operations is owned and operated by the Goodyear Tire & Rubber Company of Akron, Ohio. Goodyear Airship Operations consists of an airship base landing area, two pre-fab buildings, an office-trailer, and a shed for storing

2. Site Description and History

hazardous materials. The trailer is used as an office. The majority of the landing base is covered with grass.

The Don Dominguez Apartments are on land owned by the Watson Land Company, and are operated by Price E. Evans of Orange County, California. The Don Dominguez apartments consist of an apartment building, carports, swimming pool, parking lot, and common areas. The majority of the parking area, roads, and walkways around the apartments are constructed with asphalt. Some of the common areas and landscape areas are covered with grass and soil, which contain some gas monitoring probes and equipment.

The Jaeil Farms (small family vegetable grower) is operated by Lee Jaeil of Hawthorne, California, on land owned by the Watson Land Company.

2.4 Regulatory Involvement

2.4.1 United States Environmental Protection Agency

SVOC
semi-volatile organic
compound

VOC
volatile organic com-
pound

The VGC site was entered into the CERCLIS database on June 1, 1981. The site is not listed in the Resource Conservation and Recovery Information System database as a hazardous waste generator or TSD facility. E & E conducted both a PA (dated August 1, 1984) and an SI (dated June 22, 1989) for the VGC site at the request of the EPA. BEI conducted a SIP of the VGC site, dated March 23, 1994, for the EPA.

2.4.2 California Environmental Protection Agency

2.4.2.1 Department of Toxic Substances Control

The DTSC (formerly known as the Department of Health Services, Toxic Substances Control Division) Property Evaluation Unit developed a report, "Summary—BKK, Carson," dated July 21, 1982. This report summarized waste characteristics; hydrogeology; landfill problems; and soil, air, and public health issues. This report recommended further analysis of the soil, groundwater, and air at the VGC site.

Under contract to the EPA, DTSC took on-site soil and groundwater samples, which were analyzed for low-level CLPAS semi-volatile and volatile organic compounds (SVOCs and VOCs) during December 1996 and January 1997.

2. Site Description and History

2.4.2.2 Regional Water Quality Control Board

RWQCB
Regional Water Quality
Control Board

SWAT
Solid Waste Assessment
Test

DPW
Department of Public
Works

SCAQMD
South Coast Air Quality
Management District

The California Environmental Protection Agency, RWQCB, Los Angeles Region (formerly known as the California Regional Water Quality Control Board, Los Angeles Region) has had limited involvement with the site since it requested the submission of a groundwater Solid Waste Assessment Test (SWAT) proposal from BKK Corporation in 1988. To date, the RWQCB has not received the final groundwater SWAT report. The VGC site is not an active RWQCB site.

2.4.3 County of Los Angeles

Since 1980, the County of Los Angeles, Department of Public Works (DPW), has routinely tested for subsurface methane migration on site. Results of the tests are reported quarterly to the Los Angeles County Board of Supervisors and the City of Carson, under agreement with the City of Carson as a part of the Methane Gas Monitoring Carson Project - 301. Also, the County of Los Angeles, Department of Health Services, Solid Waste Management Program has monitored perimeter subsurface methane migration at the Victoria Golf Course and at the rest of the site.

The County of Los Angeles, DPW, and the Arnold Palmer Golf Management Company have proposed that an on-site environmental study be conducted at VGC. The purpose of the study would be to investigate alternatives for improving the irrigation system, determining the boundaries of the former BKK Carson Dump, re-landscaping the golf course, and researching the possible installation of a groundwater monitoring and gas collection and monitoring system. A proposal document still needs to be completed and submitted to the respective agencies for review, comment, and approval.

2.4.4 South Coast Air Quality Management District (SCAQMD)

Meredith/Boli & Associates, Inc. prepared an Air SWAT proposal for the Former Class II Landfill at the VGC site, and submitted it to the SCAQMD. The proposal, dated January 21, 1991, was prepared for the BKK Corporation of Torrance, California. This SWAT must be implemented and coordinated with the SCAQMD, which has urged the DPW and the Arnold Palmer Golf Management Company to involve the RWQCB, DTSC, and the EPA in their scope of work, compliance, and engineering activities.

3

Summary of Investigative Efforts

3.1 Investigation by Potentially Responsible Party

SCS Engineers of Long Beach, California, conducted an air quality SWAT report, dated November 1988, for the County of Los Angeles at the VGC and Regional Park portion of the VGC site. On February 23, 1988, landfill gas test samples taken from a perimeter methane probe (probe number IV-5), located approximately on 192nd St., detected vinyl chloride at a concentration of 2,290 parts per billion (ppb) by volume, benzene at 1,413 ppb by volume, tetrachloroethene (PCE) at 11 ppb by volume, trichloroethene (TCE) at 136 ppb by volume, and methane at 44.7 percent. Another perimeter methane gas probe IV-6, also on 192nd St., detected benzene at 651 ppb by volume, PCE at 38 ppb by volume, TCE at 90 ppb by volume and methane at 12.7 percent. The SCS SWAT report was reviewed and did not contain any information regarding analysis methods or actual lab data.

ppb
parts per billion

PCE
tetrachloroethene

TCE
trichloroethene

ppm
parts per million

The groundwater SWAT proposal, dated 1988, estimated that 3 million to 5 million tons of waste were deposited at the former landfill on site.

Monitoring of methane gas probes around the site revealed readings over 100 percent of the lower explosive limit. While methane is not a CERCLA hazardous substance, it is a common carrier gas for other hazardous compounds in landfills. A 1994 inspection of the VGC site, documented in a September 21, 1994, letter by the SCAQMD, showed readings of up to 10,000 parts per million (ppm) methane from an organic vapor analyzer calibrated with methane. These readings exceed the instantaneous limit of rule R-1150.2, which is 500 ppm. These readings also indicate that significant amounts of gas vapors were being generated at the landfill.

In 1995, soil samples were collected from the stockpiles at the Dominguez Golf Course. Analytical results indicated that lead was detected at concentrations up to 63 ppm. VOCs and

3. Summary of Investigative Efforts

SVOCs were not present above the laboratory detection limits. These results are in the Environmental Site Remediation, Dominguez Golf Course Report, prepared by Maness Environmental Services Inc., February 8, 1995.

3.2 Investigations by EPA

During December 1996 and January 1997, soil and groundwater samples were collected at the site by DTSC under contract to EPA, and analyzed for low-level CLPAS VOCs, metals, and SVOCs. DTSC subcontracted URS Consultants of San Francisco to facilitate field sampling work. The hydropunch sample collection system was used to sample soil (at 10 feet and 20 feet below ground surface [bgs]) and groundwater in the Bellflower aquifer (at 75 feet bgs). The sampling activities were conducted in accordance with the Field Sample Plan dated March 25, 1997. No EPA sampling was done prior to this event. The analytical data were reviewed and validated by the EPA's Environmental Services Assistance Team (ESAT) contractor and subsequently reviewed by the ESAT Regional Project Officer within the EPA's Quality Assurance Office. The validated data is included in Appendix B.

bgs
below ground surface
ESAT
EPA's Environmental Services Assistance Team
mg/kg
milligrams per kilogram
µg/kg
micrograms per kilogram
DCA
dichloroethane
DCE
dichloroethene

Soil. Soil samples were taken at eight locations as shown in Figure 3-1 at 10 feet and 20 feet bgs. The presence of VOCs was not verified by the soil sampling. Some VOCs were detected; however, none were the same as in the groundwater samples and all were present in the method blanks used by the laboratory. Analytical results for VOCs in soil are shown in Table 3-1. Analytical results indicated that metals were detected in soil samples at elevated levels including chromium at concentrations up to 912 milligrams per kilogram (mg/kg), lead at concentrations up to 942 mg/kg. The highest concentrations for both chromium and lead were detected in sample SS-7-10. Analytical results for SVOCs indicated that several substances were detected including 4-methylphenol up to 5,900 micrograms per kilogram (µg/kg) (SS-7-10); naphthalene up to 1,100 µg/kg (SS-7-20); phenanthrene up to 600 µg/kg (SS-7-10); and bis (2-ethylhexyl) phthalate at 750 µg/kg (SS-7-10).

Groundwater. During the ESI conducted in January 1997, groundwater samples were taken in the Bellflower aquifer at 75 feet bgs by DTSC using a hydropunch sample collection system. Groundwater samples were taken at 10 locations upgradient, downgradient, and on site. VOCs, including vinyl chloride (a degradation product of various other VOCs detected in groundwater), PCE, and TCE, dichloroethane (DCA), dichloroethene (DCE), and chlorobenzene were found at

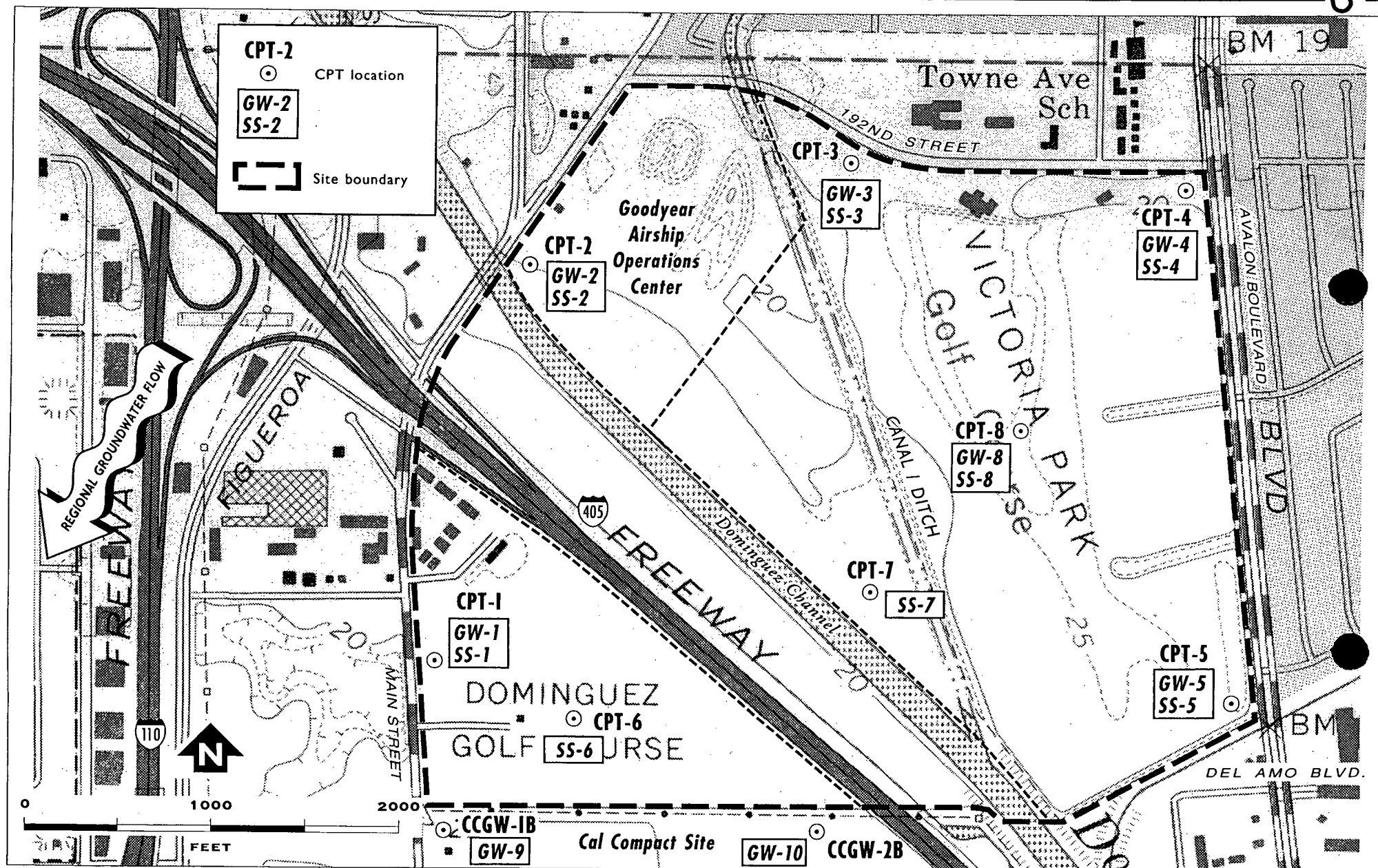


Figure 3-1 **Sampling Locations**
Victoria Golf Course Site
Carson, California

Table 3-1: Soil Sample Results, Victoria Golf Course
(All results in $\mu\text{g/kg}$)

TDD: 09-9705-013
PAN: 0191DTTGXX

Sample No.	Analyte								
	Acetone	Carbon disulfide	2-butanone	Benzene	4-Methyl-2-butanone	Toluene	Chloro-benzene	Ethyl-benzene	Xylene
SS-1-10 Duplicate 1	6	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)
SS-1-20 Duplicate 2	4	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)
SS-2-10	3	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	ND (11)	3	13
SS-2-20	43	(13)	(13)	(13)	(13)	(13)	(13)	(13)	(13)
SS-3-10 background	26	ND (14)	ND (14)	ND (14)	ND (14)	ND (14)	ND (14)	ND (14)	ND (14)
SS-3-20 background	9	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)
SS-4-10 background	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)
SS-4-20 background	4	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)
SS-5-10	5	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)
SS-5-20	8	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)
SS-6-10	ND (20)	ND (14)	7	ND (14)	ND (14)	ND (14)	ND (14)	ND (14)	2
SS-7-10	200	ND (12)	ND (12)	ND (12)	ND (12)	30	ND (12)	79	190
SS-7-20	34	(15)	(15)	(15)	(15)	(15)	(15)	(15)	(15)
SS-8-10	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)
SS-8-20	390	33	310	29	88	82	330	260	1,800
SS-9-10 Duplicate 2	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)
SS-10-10 Duplicate 1	3	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	ND (12)	(12)

ND = Not detected; sample quantitation limit in parentheses.
 $\mu\text{g/kg}$ = micrograms per kilogram.

Shaded = indicate results above background concentrations.
Bold = detected concentrations.



3. Summary of Investigative Efforts

$\mu\text{g/L}$
micrograms per liter

downgradient and on-site of the sampling locations. Vinyl chloride was detected at a maximum concentration of 25 micrograms per liter ($\mu\text{g/L}$) (GW-1-1). VOCs were mainly detected at sampling locations 1, 9, and 10. Analytical results for VOCs in groundwater are shown in Table 3-2. Analytical results for SVOCs in groundwater indicated that only di-n-butylphthalate was detected above specified detection limits. Di-n-butylphthalate is a known laboratory contaminant. Analytical results for metals in groundwater show levels that do not appear to be elevated.

Table 3-2: Groundwater Sample Results, Victoria Golf Course
(All results in $\mu\text{g/kg}$)

TDD: 09-9705-013
PAN: 0191DTTGXX

Sample No.	Analyte							
	Vinyl Chloride	Acetone	1,1-Dichloroethane	1,2-Dichloroethene	1,2-Dichloroethane	Trichloroethene	Tetrachloroethene	Chlorobenzene
GW-1-1	25	11	8	48	78	13	ND (10)	
GW-2	ND (10)	2	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
GW-3-1 Background	ND (10)	ND (10)	ND (10)	3	ND (10)	ND (10)	ND (10)	ND (10)
GW-4-1 Background	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
GW-5-1 Duplicate 1	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
GW-8-1	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
GW-9	4	ND (10)	ND (10)	5	ND (10)	16	ND (10)	ND (10)
GW-10-1	23	3	ND (10)	72	4	27	4	13
GW-17-1	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)
GW-28-1 Duplicate 1	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)	ND (10)

ND = Not detected; sample quantitation limits in parentheses.
 $\mu\text{g/kg}$ = micrograms per kilogram.
 Shaded = indicate results above background concentrations.
 Bold = detected concentrations.

4

Hazard Ranking System Factors

4.1 Sources of Contamination

The source of VOC contaminants is likely wastes deposited at the unlined, cut-and-cover Class II landfill. The SWAT report, used as a reference in the 1994 SI, estimates the waste volume at 5 million yards.

4.2 Groundwater Pathway

4.2.1 Hydrogeological Setting

The VGC lies is approximately 20 to 40 feet above sea level in the West Coast Basin of the coastal plain of Los Angeles County, California. The area is so named because all aquifers within it are confined by aquicludes or relatively impermeable layers of clay and silt over most of the area (1) (Bulletin 104, Plates 1 and 2). The net annual precipitation for the site vicinity is approximately 2.8 inches.

The following unsaturated soil and hydrogeologic units, in descending order, have been identified beneath the site: Upper Bellflower aquifer, Bellflower Sand aquifer, Lower Bellflower aquitard, Gage aquifer, Gage-Lynwood aquitard, Lynwood aquifer, Unnamed aquitard, and Silverado aquifer. The Lynwood and Silverado aquifers are used for drinking water, and the Gage is considered a secondary source of drinking water by the local water board (2). A description of each of these units is presented below.

The Upper Bellflower is relatively flat-lying and laterally continuous. It consists of interbedded, micaceous, olive-brown sand; silty sand; silt; and clay. The upper portion of this unit is unsaturated, while groundwater occurs in the bottom portion. Groundwater flow direction trends toward the southeast. The base of the Upper Bellflower ranges from approximately 47 feet bgs to 129 feet bgs. The Upper Bellflower is considered an aquifer for Hazard Ranking System (HRS) purposes because the RWQCB, Los Angeles Region, has determined that all groundwater units in the vicinity of the site are to be considered

HRS
Hazard Ranking System

4. Hazard Ranking System Factors

potential sources of drinking water pursuant to State Water Resources Control Board Resolution 88-63. In other words, groundwater is considered drinking water unless the total dissolved solids are more than 3,000 milligrams per liter, deliverability is less than 200 gallons per day, or pre-existing contamination cannot reasonably be treated.

The Bellflower Sand aquifer underlies the Upper Bellflower aquifer and consists of fine- to coarse-grained sand that generally coarsens with depth. The contact between the Bellflower Sand aquitard and the underlying Lower Bellflower aquitard is a distinct sand or silt that ranges from approximately 99 feet bgs to 146 feet bgs. The Bellflower Sand is considered an aquifer for HRS purposes pursuant to RWQCB Resolution 88-63. The Lower Bellflower underlies the Bellflower Sand and consists of silt of varying plasticity, as well as clayey sandy silt, fine-grained silty sand, and sand. The contact between the Lower Bellflower and the underlying Gage unit is a moderately well-defined silt to fine-grained sand that ranges from approximately 124 feet bgs to 171 feet bgs.

The Gage aquifer typically consists of fine-grained sand with a small amount of silt that grades to a silty sand near the base of the aquifer. The groundwater flow direction trends toward the east-southeast. The contact between the Gage and the underlying Gage-Lynwood stratum is gradational and is characterized by intermittent interbedding of silt and silty sand. The depth of this aquifer extends from approximately 100 feet bgs to 150 feet bgs near the site (Bulletin 104). The Gage is considered an aquifer for HRS purposes because the RWQCB, Los Angeles Region, has determined that all groundwater units in the vicinity of the VGC site are to be considered potential sources of drinking water pursuant to State Water Resources Control Board Resolution 88-63 (2).

The Gage-Lynwood aquitard underlies the Gage aquifer, and consists mostly of silt, sandy silt, and/or clayey silt interbedded with fine-grained silty sand.

The Lynwood aquifer underlies the Gage-Lynwood aquitard. The upper 20 feet of the Lynwood consists of fine- to coarse-grained sand. This sand is frequently underlain by as much as 8 feet of silt or clay of varying plasticity. Approximately 10 to 30 feet of well-graded sand, gravelly sand, and sandy gravel with some silty sand intervals underlie the top 20 to 30 feet of the Lynwood. The groundwater flow direction trends toward the southeast. The Lynwood reaches its maximum thickness of 425 feet bgs near the site (1).

4. Hazard Ranking System Factors

The Lynwood is considered an aquifer for HRS purposes because the RWQCB, Los Angeles Region, has determined that all groundwater units near the VGC site are to be considered potential sources of drinking water, pursuant to State Water Resources Control Board Resolution 88-63.

The Unnamed aquitard stratum is approximately 100 feet thick, and underlies the Lynwood aquifer near the site (1). Cross-sections from DWR's Bulletin 104 indicate that the closest interconnecting point between the Lynwood and Silverado aquifers is approximately 5,000 feet south of the site.

The Silverado aquifer underlies the unnamed unit near the site and is composed primarily of fine- to coarse-grained sands and gravels. These highly permeable marine deposits range from 450 to over 1,000 feet bgs near the site (Bulletin 104). In contrast to the previously discussed aquifers, groundwater within the Silverado aquifer flows mainly to the east-northeast. The vast majority of municipal groundwater wells are screened in, and draw water from, the Lynwood and Silverado aquifers.

Data are available within 2 miles of the VGC site to establish interconnections between the five strata that are considered aquifers for HRS purposes (i.e., upper Bellflower, Bellflower sand, Gage, Lynwood, and Silverado). As described in the Remedial Investigation for the Del Almo site (which is about 1.0 mile from the site), groundwater sampling data are available to document interconnections between the upper Bellflower sand, Gage, and Lynwood Aquifers. Most of the municipal groundwater wells in the West Coast Basin of the coastal plain of Los Angeles are screened in the Lynwood and Silverado aquifers. According to the California Department of Water Resources, Bulletin 104, the Lynwood and Silverado aquifers are in direct contact with each other within two miles of the site. The subsurface materials existing from the surface to the upper Bellflower consist of fine-grained sand, and silty sand.

4.2.2 Groundwater Targets

Groundwater targets are residents, students, and workers regularly served by wells that are within 4 miles of the site for the aquifer being evaluated (and appropriate overlying aquifers). The following four water companies operate drinking water wells within 4 miles of the site: the City of Torrance, the Southern California Water Company, the City of Compton, and the Dominguez Water Company. Table 6-1 shows groundwater purveyor information, including number of wells and the population served.

4. Hazard Ranking System Factors

MWD
Metropolitan Water
District

The Southern California Water Company's southwest system is a blended drinking water supply system that serves approximately 150,000 people. The system is supplied with drinking water through 15 active groundwater wells, one of which is within 4 miles of the site. Twenty percent of the total water supply is imported from the Metropolitan Water District (MWD). (3)

Table 4-1 Water Purveyors and Wells Within 4 Miles of the Victoria Golf Course

Name	Total Population Served	Total Number of Wells and Intakes	Percent Groundwater
Dominguez Water Corporation	125,000	13	50
City of Compton	52,000	9	55
City of Torrance	95,000	3	10
Southern California Water Company Southwest System	150,000	16	80

The City of Torrance operates a blended drinking water system that serves approximately 95,000 people. The system is supplied with 10 percent of its drinking water through two active groundwater wells. The remaining 90 percent is imported from the MWD. The wells are within 4 miles of the site. (4)

The City of Compton operates a blended drinking water system that serves approximately 52,000 people. The system is supplied with drinking water through eight active groundwater wells that contribute 55 percent of the total water supply to the system. The remaining 45 percent is imported from the MWD. Two wells are within 4 miles of the site. (5, 6)

The Dominguez Water Corporation operates a blended drinking water supply system that serves approximately 125,000 people. The system is supplied with drinking water through 12 active groundwater wells that contribute 50 percent of the drinking water. The remaining 50 percent is surface water purchased from the MWD. Nine of the active drinking water wells are within 4 miles of the site. (6, 7, 8)

4. Hazard Ranking System Factors

4.2.3 Groundwater Pathway Conclusion

Although VOCs, including vinyl chloride, 1,2-DCE, 1,2-DCA, and TCE, were detected in groundwater beneath the site at concentrations greater than three times background at approximately 75 feet bgs, the analytical results for soil samples collected at the site do not appear to be sufficient to document that the VOC contamination is attributable to the site. The VGC site (formerly the BKK Dump) was a Class II landfill and reportedly accepted an estimated 5 million cubic yards of waste. Information documented in the Del Almo HRS Documentation Record indicate that aquifers are interconnected within 2 miles of the site. Approximately 422,000 people are served by the drinking water wells within 4 miles of the site.

4.3 Surface Water Pathway

The DTSC hydropunch data (1997) confirmed that the site is capped with a significant amount (5 to 20 feet) of fill material. Most of the site is also covered with grass maintained for recreational purposes. Runoff from the site goes to the Dominguez storm channel. There are no surface water intakes within 15 miles downstream of the site.

4.4 Air and Soil Exposure Pathway

The site is capped with 5 to 20 feet of uncontaminated fill material. Most of the site surface is covered with vegetation. No air sampling was conducted during the 1997 DTSC ESI field activities. The VGC site is bordered in part by single family dwellings, and the Towne Avenue Elementary School.

5

Emergency Response Considerations

The National Contingency Plan [40 CFR 300.415 (b) (2)] authorizes the EPA to consider emergency response actions at sites that pose an imminent threat to human health or the environment. A referral to Region 9's ERS does not appear to be necessary because the site is covered with 5 to 20 feet of uncontaminated fill material, and because direct exposure to hazardous wastes from the site appears to be unlikely.

6

Summary

The Victoria Golf Course is located at 340 East 192nd Street in Carson, California. The site occupies 348 acres in a mixed recreational, commercial, residential, and industrial area. The site is a former landfill that is now closed and occupied by VGC, a portion of the Victoria Regional Park, Dominguez Golf Center, Goodyear Airship Operations, Jaeil Farms, and the 65-unit Don Dominguez Apartments.

The site was developed over the former Ben K. Kazarian Dump, a Class II and III cut-and-cover landfill that operated from 1948 to about 1959. The landfill accepted municipal, household, commercial, and hazardous wastes, including liquid, semi-liquid hazardous wastes. There are no records of what was actually dumped, only what was permitted.

Since 1980, the County of Los Angeles, Department of Public Works, has routinely tested for subsurface methane migration at the site. In addition, the County of Los Angeles, Department of Health Services, Solid Waste Management Program, Bureau of Environmental Protection, has monitored perimeter subsurface methane migration at the site. A contractor to the Ben K. Kazarian Corporation of Torrance prepared an air Solid Waste Assessment Test proposal in 1991, which was submitted to the South Coast Air Quality Management District. The Solid Waste Assessment Test has yet to be implemented.

The United States Environmental Protection Agency has been involved with investigating the site since 1984. In 1997, the United States Environmental Protection Agency directed the California Environmental Protection Agency, Department of Toxic Substances Control to conduct an expanded site inspection of the site. The Department of Toxic Substances Control conducted soil and groundwater sampling activities at the site in December 1996 and January 1997.

Results of Department of Toxic Substances Control sampling activities indicated that several volatile organic compounds are present in groundwater beneath the site. Analytical results for soil showed that 5 to 20 feet of uncontaminated fill material is



6. Summary

on the site. No air sampling was conducted on site during the December 1996 and January 1997 events. The Solid Waste Assessment Test proposal has yet to be implemented.

The following pertinent Hazard Ranking System factors are associated with the site:

- Groundwater is first encountered beneath the site at 75 feet below ground surface. Analytical results of groundwater sample show that volatile organic compounds, including vinyl chloride, 1,2-dichloroethene, 1,2-dichloroethane, and trichloroethene, were detected in groundwater beneath the site at concentrations greater than three times background.
- Analytical results of soil collected beneath the site are not sufficient to document attribution of contaminated groundwater to the site. At least two other landfills are within 0.25 mile from the site.
- The site (formerly the Ben K. Kazarian Dump) accepted an estimated 5 million cubic yards of waste.
- Approximately 422,000 people are served by the drinking water wells within 4 miles of the site.

A

References



References:

1. California Department of Water Resources, Southern District, Bulletin No. 104, Planned Utilization of the Ground Water Basins of the Coastal Plain of Los Angeles County, Appendix A, Ground Water Geology, 1961.
2. Hargis & Associates, Remedial Investigation for the Montrose Site, October 1992.
3. Cohen, Koby, Southern California Water System, Telephone conversation recorded on Contact Log by Tom Genolio and on Facsimile, Ecology and Environment, inc., June 6, 1998.
4. Scaper, Sandy, City of Torrance, Telephone conversation recorded in Contact Log by Tom Genolio and on Facsimile, Ecology and Environment, Inc., June 4, 1998.
5. Frison, Jerald, City of Compton, Telephone conversation recorded in Contact Log by Tom Genolio and on Facsimile, Ecology and Environment, Inc., June 4, 1998.
6. California Department of Health Services, Water Quality Monitoring Database, 1991, as reported by the EPA Region 9 GIS Center, January 1994.
7. Foth, John, Domingues Water Company, Telephone conversation recorded on Contact Log by Tom Genolio and on Facsimile, Ecology and Environment, Inc., June 4, 1998.
8. Ross, Cheryl, Central Basin Municipal Water District, Facsimile to Judy Sapp, Ecology and Environment, Inc., June 3, 1998.

B

Validated Data

Lockheed Martin Environmental Services

Environmental Services Assistance Team, Region 9

301 Howard Street, Suite 970, San Francisco, CA 94105-2241

Phone: 415-278-0570 Fax: 415-278-0588

MEMORANDUM

TO: Rachel Loftin
Site Assessment Manager
States Planning & Assessment Office, SFD-5

THROUGH: Rose Fong
ESAT Regional Project Officer
Quality Assurance (QA) Office, PMD-3

FROM: Jack Berges
Team Manager
Environmental Services Assistance Team (ESAT)

ESAT Contract No.: 68D60005
Work Assignment No.: 9-96-0-4
Technical Direction No.: 9604116

DATE: February 21, 1997

SUBJECT: Review of Analytical Data

Attached are comments resulting from ESAT Region 9 validation of the following analytical data:

SITE: Victoria Golf Course
SITE ACCOUNT NO.: ZZ
CERCLIS ID NO.: CAD980818926
CASE NO.: 25268 Memo #01
SDG NO.: YX354

LABORATORY: Southwest Labs of Oklahoma, Inc. (SWOK)
ANALYSIS: Volatiles and Semivolatiles

SAMPLES: 4 Water and 3 Soil Samples (see Case Summary)

COLLECTION DATE: January 8, 1997

REVIEWER: Adriane Scheele, ESAT/Lockheed

The comments and qualifications presented in this report have been reviewed and approved by the EPA Work Assignment Manager (WAM) for the ESAT Contract, whose signature appears above.

If there are any questions, please contact Deirdre O'Leary (ESAT/Lockheed) at (415) 278-0585 or Rose Fong (QA Office/EPA) at (415) 744-1534.

Attachment

cc: Ray Flores, TPO USEPA Region 6

TPO: []FYI [X]Attention []Action

SAMPLING ISSUES: [X]Yes []No

Data Validation Report

Case No.: 25268 Memo #01
 Site: Victoria Golf Course
 Laboratory: Southwest Labs of Oklahoma, Inc. (SWOK)
 Reviewer: Adriane Scheele, ESAT/Lockheed
 Date: February 21, 1997

I. Case Summary

SAMPLE INFORMATION:

VOA and BNA Samples: **Water:** YX327, YX334, YX335, and YX336
Soil: YX349, YX353, and YX354
 Concentration and Matrix: Low Level Groundwater and Soil
 Analysis: Volatiles and Semivolatiles
 SOW: OLM03.2
 Collection Date: January 8, 1997
 Sample Receipt Date: January 10, 1997
 Extraction Date: January 10, 1997
 VOA Analysis Date: January 13, 16, 17, and 21, 1997
 BNA Analysis Date: January 17, 1997

FIELD QC:

Trip Blanks (TB): None
 Field Blanks (FB): None
 Equipment Blanks (EB): YX334 and YX335
 Background Samples (BG): None
 Field Duplicates (D1): YX327 and YX336

METHOD BLANKS AND ASSOCIATED SAMPLES:

VBLK1: YX349, YX353, YX353MS, YX353MSD, and YX354
 VBLK2: YX327, YX327MS, YX327MSD, and YX334
 VBLK3: YX335 and YX336
 VBLK4: VHBLK1
 SBLK1: YX327, YX327MS, YX327MSD, YX335, and YX336
 SBLK2: YX349, YX353, YX354, YX354DL, YX354MS, and YX354MSD
 SBLK3: YX334 and YX336RE

TABLES:

1A: Analytical Results with Qualifications
 1B: Data Qualifier Definitions for Organic Data Review

TPO ACTION:

None.

TPO ATTENTION:

(1) Several results for volatile and semivolatile target analytes are qualified as nondetected and estimated (U,J) due to contamination in laboratory blanks. (2) Several results for volatile and semivolatile target analytes are estimated (J) due to calibration problems. (3) Several results for semivolatile target analytes in one of the method blanks are estimated (J) due to a low internal standard response.

SAMPLING ISSUES:

A soil sample was not designated for quality control (QC) analysis on any of the chain of custody forms.

DL-Dilution; MS-Matrix Spike; MSD-Matrix Spike Duplicate;
 RE-Reextraction; VHBLK-Storage Blank

97-02-21-AS-02/25268M01.RPT

ADDITIONAL COMMENTS:

A temperature of 1°C was measured in the coolers containing all of the samples of this sample delivery group (SDG) which were received at the laboratory on January 10, 1997. This temperature does not meet the 4°C ±2°C sample preservation criterion.

The Tentatively Identified Compounds (TICs) found in the samples are reported on the Form 1Es, 1Fs, and alkane reports included in this report. No TICs were detected in the volatile fraction of samples YX327, YX334, and YX335 and the semivolatile fraction of sample YX334.

This report was prepared according to the USEPA Contract Laboratory Program (CLP) Statement of Work (SOW) for Organic Analysis, OLM03.2, and the document, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," February 1994.

II. Validation Summary

	VOA		BNA	
	Acceptable/Comment		Acceptable/Comment	
HOLDING TIMES	[YES]	[]	[YES]	[]
GC/MS TUNE/GC PERFORMANCE	[YES]	[]	[YES]	[]
CALIBRATIONS	[NO]	[D]	[NO]	[E]
FIELD QC	[YES]	[]	[NO]	[C]
LABORATORY BLANKS	[NO]	[B]	[NO]	[C]
SURROGATES	[YES]	[]	[YES]	[]
MATRIX SPIKE/DUPLICATES	[YES]	[G]	[YES]	[G]
INTERNAL STANDARDS	[YES]	[]	[NO]	[F]
COMPOUND IDENTIFICATION	[YES]	[H]	[YES]	[H]
COMPOUND QUANTITATION	[YES]	[A, I]	[YES]	[A]
SYSTEM PERFORMANCE	[YES]	[]	[YES]	[]

N/A = Not Applicable

III. Validity and Comments

- A. The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.

- All results below the contract required quantitation limits

Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

- B. The detected results for the following volatile target analytes are qualified as nondetected and estimated due to laboratory blank contamination. The results are flagged "U,J" in Table 1A.

- Methylene chloride in samples YX349 and YX353
- Acetone in samples YX327, YX349, and YX353

Methylene chloride was found in laboratory method blank VBLK4 and storage blank VHBLK1; and acetone was found in storage blank VHBLK1. (See Table 1A for concentrations.) The results for the samples listed above are considered nondetected and estimated (U,J) and the quantitation limits have been increased according to the blank qualification rules presented below.

No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for the common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result (U,J). If the sample result is less than the CRQL, the result is reported as nondetected (U,J) at the CRQL.

Although 1,2-dichloroethane and trichloroethene were found in equipment blanks YX334 and YX335 and chloroform was found in laboratory method blank VBLK2, no data are qualified because these analytes were not found in any of the samples.

A laboratory method blank is laboratory reagent water or baked sand for solid matrices analyzed with all reagents, surrogates, and internal standards and carried through the same sample preparation and analytical procedures as the field samples. The laboratory method blank is used to determine the level of contamination introduced by the laboratory during extraction and analysis.

A storage blank is laboratory reagent water stored in a vial in the same area as the field samples. The storage blank is used to determine the level of contamination introduced by the laboratory during sample storage prior to analysis.

C. The detected results for the following semivolatile target analytes are qualified as nondetected and estimated due to laboratory and equipment blank contamination. The results are flagged "U,J" in Table 1A.

- Di-n-butylphthalate in samples YX327, YX336, and YX354
- bis(2-Ethylhexyl)phthalate in samples YX327, YX336, and YX353

Di-n-butylphthalate and bis(2-ethylhexyl)phthalate were found in equipment blank YX335. Also, bis(2-ethylhexyl)phthalate was found in laboratory method blank SBLK2. (See Table 1A for concentrations.) The results for the samples listed above are considered nondetected and estimated (U,J) and the quantitation limits have been increased according to the blank qualification rules presented below.

No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for the common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result (U,J). If the sample result is less than the CRQL, the result is reported as nondetected (U,J) at the CRQL.

Although diethylphthalate, di-n-butylphthalate, and bis(2-ethylhexyl)phthalate were found in laboratory method blank SBLK3, no data are qualified because the associated sample is equipment blank YX334.

An equipment blank is clean water that has been collected as a sample using decontaminated sampling equipment. The intent of an equipment blank is to monitor for contamination introduced by the sampling activity, although any laboratory introduced contamination will also be present.

- D. The quantitation limits for the following volatile target analyte are estimated due to a large percent difference (%D) in the continuing calibration. The results are flagged "J" in Table 1A.

- Bromoform in samples YX335, YX336, and method blank VBLK3

A %D of 26.4 was observed for bromoform in the continuing calibration performed January 17, 1997. This value exceeds the $\pm 25.0\%$ QC advisory validation criterion.

The continuing calibration checks the instrument performance daily and produces the relative response factors (RRFs) for target analytes that are used for quantitation.

- E. The quantitation limits for the following semivolatile target analytes are estimated due to large percent differences (%Ds) in the continuing calibration. The results are flagged "J" in Table 1A.

- 2,4-Dinitrophenol, 4-nitrophenol, 2,4-dinitrotoluene, and 4-nitroaniline in samples YX349, YX353, YX354, and method blank SBLK3

Percent differences of -31.2, -39.9, -25.4, and -28.6 were observed for 2,4-dinitrophenol, 4-nitrophenol, 2,4-dinitrotoluene, and 4-nitroaniline, respectively, in the continuing calibration performed January 17, 1997. These values exceed the $\pm 25.0\%$ QC advisory validation criterion.

- F. The quantitation limits for the following analytes are estimated due to a low internal standard area. The results are flagged "J" in Table 1A.

- Di-n-octylphthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene in method blank SBLK3

The internal standard area for method blank SBLK3 fell below the QC advisory criterion, as shown below.

<u>Sample</u>	<u>Internal Standard</u>	<u>Area</u>	<u>QC Limits</u>
SBLK3	Perylene-d ₁₂	430195	600658-2402634

The quantitation limits for the analytes listed above are considered quantitatively questionable. Since the results are nondetected, false negatives may exist.

Internal standards, introduced into every calibration standard, blank, sample, and QC sample, monitor changes in analyte response due to matrix effects and fluctuations in instrument sensitivity throughout the analytical sequence. Internal standards are used to quantitate the concentration of target analytes and surrogate standards.

- G. The matrix spike and matrix spike duplicate results and relative percent differences (RPDs) for the analytes listed below in water QC samples YX327MS and YX327MSD and soil QC samples YX353MS, YX353MSD, YX354MS, and YX354MSD did not meet the criteria for accuracy and precision specified in the SOW. The recoveries and RPDs are presented below. The outliers are flagged with an asterisk (*).

<u>Analyte</u>	<u>YX327MS</u>	<u>YX327MSD</u>	<u>RPD</u>	<u>QC limits</u>	
	<u>%Recovery</u>	<u>%Recovery</u>		<u>RPD</u>	<u>%Recovery</u>
Benzene	122	98	22*	11	76-127
N-Nitroso-di-n-propylamine	38*	38*	0	38	41-116
1,2,4-Trichlorobenzene	40	38*	5	28	39-98
Acenaphthene	42*	40*	5	31	46-118
<u>Analyte</u>	<u>YX353MS</u>	<u>YX353MSD</u>	<u>RPD</u>	<u>QC limits</u>	
	<u>%Recovery</u>	<u>%Recovery</u>		<u>RPD</u>	<u>%Recovery</u>
1,1-Dichloroethene	92	73	23*	22	59-172
Toluene	127	102	22*	21	59-139
<u>Analyte</u>	<u>YX354MS</u>	<u>YX354MSD</u>	<u>RPD</u>	<u>QC limits</u>	
	<u>%Recovery</u>	<u>%Recovery</u>		<u>RPD</u>	<u>%Recovery</u>
2,4-Dinitrotoluene	86	95*	10	47	28-89
Pyrene	76	24*	104*	36	35-142

The results obtained may indicate poor laboratory technique, sample nonhomogeneity for soils, or matrix effects which may interfere with accurate analysis. Since the RPDs for 1,1-dichloroethene and toluene are only slightly outside the QC limits, no adverse effect on the quality of the data is expected. Although the recovery for 2,4-dinitrotoluene in QC sample YX354MSD is above the QC limit, this recovery does not indicate an analytical deficiency. The effect of the high RPDs for benzene and pyrene and low recoveries for N-nitroso-di-n-propylamine, 1,2,4-trichlorobenzene, acenaphthene, and pyrene on the quality of the data is not known.

Matrix spike sample analysis provides information about the effect of the sample matrix on sample preparation and measurement.

- H. Although not detected in any associated blanks, acetone, 2-butanone, and phthalates have been commonly found as contaminants in the field and in many laboratories. The user should note that the analytes listed below may be artifacts.
- Acetone in sample YX354
 - 2-Butanone in samples YX349 and YX354
 - Dimethylphthalate, bis(2-ethylhexyl)phthalate, and di-n-octylphthalate in sample YX349
 - Diethylphthalate in samples YX327, YX336, and YX354
- I. The volatile fraction of sample YX354 was analyzed at a 5-fold dilution due to high levels of target analytes. The CRQLs listed for the volatile fraction of sample YX354 in Table 1A have been multiplied by the dilution factor.

TABLE 1A

Case No.: 25268 Memo #01

Site: Victoria Golf Course

Lab.: Southwest Labs of Oklahoma, Inc. (SWOK)

Reviewer: Adriane Scheele, ESAT/Lockheed

Date: February 21, 1997

Analysis Type: Low Level Groundwater

Samples for Volatiles

Concentration in $\mu\text{g/L}$ [illegible]

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank

TB-Trip Blank, BG-Background Sample

TABLE 1A

Case No.: 25268 Memo #01

Site: Victoria Golf Course

Analysis Type: Low Level Soil Samples
for Volatiles

Lab.: Southwest Labs of Oklahoma, Inc. (SWOK)

Reviewer: Adriane Scheele, ESAT/Lockheed

Date: February 21, 1997

Concentration in µg/Kg

Station Location	SS-6-10			SS-8-10			SS-8-20			Method Blank			CRQL		
Sample I.D.	YX349			YX353			YX354			VBLK1					
Date of Collection	1/8/97			1/8/97			1/8/97								
Volatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Chloromethane	14 U			12 U			63 U	I		10 U			10		
Bromomethane	14 U			12 U			63 U	I		10 U			10		
Vinyl chloride	14 U			12 U			63 U	I		10 U			10		
Chloroethane	14 U			12 U			63 U	I		10 U			10		
Methylene chloride	14 U	J	B	12 U	J	B	63 U	I		10 U			10		
Acetone	20 U	J	B	12 U	J	B	390		H	10 U			10		
Carbon disulfide	14 U			12 U			33 L	J	A	10 U			10		
1,1-Dichloroethene	14 U			12 U		G	63 U	I		10 U			10		
1,1-Dichloroethane	14 U			12 U			63 U	I		10 U			10		
1,2-Dichloroethene (total)	14 U			12 U			63 U	I		10 U			10		
Chloroform	14 U			12 U			63 U	I		10 U			10		
1,2-Dichloroethane	14 U			12 U			63 U	I		10 U			10		
2-Butanone	7 L	J	AH	12 U			310		H	10 U			10		
1,1,1-Trichloroethane	14 U			12 U			63 U	I		10 U			10		
Carbon tetrachloride	14 U			12 U			63 U	I		10 U			10		
Bromodichloromethane	14 U			12 U			63 U	I		10 U			10		
1,2-Dichloropropane	14 U			12 U			63 U	I		10 U			10		
cis-1,3-Dichloropropene	14 U			12 U			63 U	I		10 U			10		
Trichloroethene	14 U			12 U			63 U	I		10 U			10		
Dibromochloromethane	14 U			12 U			63 U	I		10 U			10		
1,1,2-Trichloroethane	14 U			12 U			63 U	I		10 U			10		
Benzene	14 U			12 U			29 L	J	A	10 U			10		
trans-1,3-Dichloropropene	14 U			12 U			63 U	I		10 U			10		
Bromoform	14 U			12 U			63 U	I		10 U			10		
4-Methyl-2-pentanone	14 U			12 U			88			10 U			10		
2-Hexanone	14 U			12 U			63 U	I		10 U			10		
Tetrachloroethene	14 U			12 U			63 U	I		10 U			10		
1,1,2,2-Tetrachloroethane	14 U			12 U			63 U	I		10 U			10		
Toluene	14 U			12 U		G	82			10 U			10		
Chlorobenzene	14 U			12 U			330			10 U			10		
Ethylbenzene	14 U			12 U			260			10 U			10		
Styrene	14 U			12 U			63 U	I		10 U			10		
Xylene (total)	2 L	J	A	12 U			1800			10 U			10		
Percent Solids	73 %			84 %			79 %			N/A			N/A		

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank

TB-Trip Blank, BG-Background Sample

Case No.: 25268 Memo #01

Site: Victoria Golf Course

Lab.: Southwest Labs of Oklahoma, Inc. (SWOK)

Reviewer: Adriane Scheele, ESAT/Lockheed

Date: February 21, 1997

Analysis Type: Low Level Groundwater Samples
for Semivolatiles

Concentration in $\mu\text{g/L}$

Station Location	GW-8-1			GW-15-1			GW-16-1			GW-17-1			Method Blank			Method Blank					
Sample I.D.	YX327 D1			YX334 EB			YX335 EB			YX336 D1			SBLK1			SBLK3			CRQL		
Date of Collection	1/8/97			1/8/97			1/8/97			1/8/97											
Semivolatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Phenol	10 U			10 U			10 U			10 U			10 U			10 U			10		
bis(2-Chloroethyl)ether	10 U			10 U			10 U			10 U			10 U			10 U			10		
2-Chlorophenol	10 U			10 U			10 U			10 U			10 U			10 U			10		
1,3-Dichlorobenzene	10 U			10 U			10 U			10 U			10 U			10 U			10		
1,4-Dichlorobenzene	10 U			10 U			10 U			10 U			10 U			10 U			10		
1,2-Dichlorobenzene	10 U			10 U			10 U			10 U			10 U			10 U			10		
2-Methylphenol	10 U			10 U			10 U			10 U			10 U			10 U			10		
2,2'-oxybis(1-Chloropropane)	10 U			10 U			10 U			10 U			10 U			10 U			10		
4-Methylphenol	10 U			10 U			10 U			10 U			10 U			10 U			10		
N-Nitroso-di-n-propylamine	10 U		G	10 U			10 U			10 U			10 U			10 U			10		
Hexachloroethane	10 U			10 U			10 U			10 U			10 U			10 U			10		
Nitrobenzene	10 U			10 U			10 U			10 U			10 U			10 U			10		
Isophorone	10 U			10 U			10 U			0.5 L	J	A	10 U			10 U			10		
2-Nitrophenol	10 U			10 U			10 U			10 U			10 U			10 U			10		
2,4-Dimethylphenol	10 U			10 U			10 U			10 U			10 U			10 U			10		
bis(2-Chloroethoxy)methane	10 U			10 U			10 U			10 U			10 U			10 U			10		
2,4-Dichlorophenol	10 U			10 U			10 U			10 U			10 U			10 U			10		
1,2,4-Trichlorobenzene	10 U		G	10 U			10 U			10 U			10 U			10 U			10		
Naphthalene	10 U			10 U			10 U			10 U			10 U			10 U			10		
4-Chloroaniline	10 U			10 U			10 U			10 U			10 U			10 U			10		
Hexachlorobutadiene	10 U			10 U			10 U			10 U			10 U			10 U			10		
4-Chloro-3-methylphenol	10 U			10 U			10 U			0.6 L	J	A	10 U			10 U			10		
2-Methylnaphthalene	10 U			10 U			10 U			10 U			10 U			10 U			10		
Hexachlorocyclopentadiene	10 U			10 U			10 U			10 U			10 U			10 U			10		
2,4,6-Trichlorophenol	10 U			10 U			10 U			10 U			10 U			10 U			10		
2,4,5-Trichlorophenol	25 U			25 U			25 U			25 U			25 U			25 U			25		
2-Chloronaphthalene	10 U			10 U			10 U			10 U			10 U			10 U			10		
2-Nitroaniline	25 U			25 U			25 U			25 U			25 U			25 U			25		
Dimethylphthalate	10 U			10 U			10 U			10 U			10 U			10 U			10		
Acenaphthylene	10 U			10 U			10 U			10 U			10 U			10 U			10		
2,6-Dinitrotoluene	10 U			10 U			10 U			10 U			10 U			10 U			10		
3-Nitroaniline	25 U			25 U			25 U			25 U			25 U			25 U			25		

Station Location	GW-8-1			GW-15-1			GW-16-1			GW-17-1			Method Blank			Method Blank			CRQL		
Sample I.D.	YX327 D1			YX334 EB			YX335 EB			YX336 D1			SBLK1			SBLK3					
Date of Collection	1/8/97			1/8/97			1/8/97			1/8/97											
Semivolatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Acenaphthene	10 U		G	10 U			10 U			10 U			10 U			10 U			10		
2,4-Dinitrophenol	25 U			25 U			25 U			25 U			25 U			25 U	J	E	25		
4-Nitrophenol	25 U			25 U			25 U			25 U			25 U			25 U	J	E	25		
Dibenzofuran	10 U			10 U			10 U			10 U			10 U			10 U			10		
2,4-Dinitrotoluene	10 U			10 U			10 U			10 U			10 U			10 U	J	E	10		
Diethylphthalate	1 L	J	AH	10 U			10 U			1 L	J	AH	10 U			0.6 L	J	AC	10		
4-Chlorophenyl phenyl ether	10 U			10 U			10 U			10 U			10 U			10 U			10		
Fluorene	10 U			10 U			10 U			10 U			10 U			10 U			10		
4-Nitroaniline	25 U			25 U			25 U			25 U			25 U			25 U	J	E	25		
4,6-Dinitro-2-methylphenol	25 U			25 U			25 U			25 U			25 U			25 U			25		
N-Nitrosodiphenylamine	10 U			10 U			10 U			10 U			10 U			10 U			10		
4-Bromophenyl phenyl ether	10 U			10 U			10 U			10 U			10 U			10 U			10		
Hexachlorobenzene	10 U			10 U			10 U			10 U			10 U			10 U			10		
Pentachlorophenol	25 U			25 U			25 U			25 U			25 U			25 U			25		
Phenanthrene	10 U			10 U			10 U			10 U			10 U			10 U			10		
Anthracene	10 U			10 U			10 U			10 U			10 U			10 U			10		
Carbazole	10 U			10 U			10 U			10 U			10 U			10 U			10		
Di-n-butylphthalate	10 U	J	C	10 U			0.6 L	J	AC	10 U	J	C	10 U			1 L	J	AC	10		
Fluoranthene	10 U			10 U			10 U			10 U			10 U			10 U			10		
Pyrene	10 U			10 U			10 U			10 U			10 U			10 U			10		
Butylbenzylphthalate	10 U			10 U			10 U			10 U			10 U			10 U			10		
3,3'-Dichlorobenzidine	10 U			10 U			10 U			10 U			10 U			10 U			10		
Benzo(a)anthracene	10 U			10 U			10 U			10 U			10 U			10 U			10		
Chrysene	10 U			10 U			10 U			10 U			10 U			10 U			10		
bis(2-Ethylhexyl)phthalate	10 U	J	C	10 U			1 L	J	AC	10 U	J	C	10 U			1 L	J	AC	10		
Di-n-octylphthalate	10 U			10 U			10 U			10 U			10 U			10 U	J	F	10		
Benzo(b)fluoranthene	10 U			10 U			10 U			10 U			10 U			10 U	J	F	10		
Benzo(k)fluoranthene	10 U			10 U			10 U			10 U			10 U			10 U	J	F	10		
Benzo(a)pyrene	10 U			10 U			10 U			10 U			10 U			10 U	J	F	10		
Indeno(1,2,3-cd)pyrene	10 U			10 U			10 U			10 U			10 U			10 U	J	F	10		
Dibenz(a,h)anthracene	10 U			10 U			10 U			10 U			10 U			10 U	J	F	10		
Benzo(g,h,i)perylene	10 U			10 U			10 U			10 U			10 U			10 U	J	F	10		

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

BG-Background Sample

Case No.: 25268 Memo #01

TABLE 1A

Site: Victoria Golf Course

Lab.: Southwest Labs of Oklahoma, Inc. (SWOK)

Analysis Type: Low Level Soil Samples
for Semivolatiles

Reviewer: Adriane Scheele, ESAT/Lockheed

Date: February 21, 1997

Concentration in µg/Kg

Station Location	SS-6-10			SS-8-10			SS-8-20			Method Blank			CRQL					
Sample I.D.	YX349			YX353			YX354			SBLK2								
Date of Collection	1/8/97			1/8/97			1/8/97											
Semivolatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Phenol	450 U			390 U			420 U			330 U			330					
bis(2-Chloroethyl)ether	450 U			390 U			420 U			330 U			330					
2-Chlorophenol	450 U			390 U			420 U			330 U			330					
1,3-Dichlorobenzene	450 U			390 U			420 U			330 U			330					
1,4-Dichlorobenzene	61 L J A			390 U			44 L J A			330 U			330					
1,2-Dichlorobenzene	450 U			390 U			34 L J A			330 U			330					
2-Methylphenol	450 U			390 U			420 U			330 U			330					
2,2'-oxybis(1-Chloropropane)	450 U			390 U			420 U			330 U			330					
4-Methylphenol	450 U			390 U			240 L J A			330 U			330					
N-Nitroso-di-n-propylamine	450 U			390 U			420 U			330 U			330					
Hexachloroethane	450 U			390 U			420 U			330 U			330					
Nitrobenzene	450 U			390 U			420 U			330 U			330					
Isophorone	450 U			390 U			420 U			330 U			330					
2-Nitrophenol	450 U			390 U			420 U			330 U			330					
2,4-Dimethylphenol	450 U			390 U			420 U			330 U			330					
bis(2-Chloroethoxy)methane	450 U			390 U			420 U			330 U			330					
2,4-Dichlorophenol	450 U			390 U			420 U			330 U			330					
1,2,4-Trichlorobenzene	450 U			390 U			420 U			330 U			330					
Naphthalene	200 L J A			390 U			190 L J A			330 U			330					
4-Chloroaniline	450 U			390 U			420 U			330 U			330					
Hexachlorobutadiene	450 U			390 U			420 U			330 U			330					
4-Chloro-3-methylphenol	450 U			390 U			420 U			330 U			330					
2-Methylnaphthalene	110 L J A			390 U			130 L J A			330 U			330					
Hexachlorocyclopentadiene	450 U			390 U			420 U			330 U			330					
2,4,6-Trichlorophenol	450 U			390 U			420 U			330 U			330					
2,4,5-Trichlorophenol	1100 U			990 U			1000 U			830 U			830					
2-Chloronaphthalene	24 L J A			390 U			420 U			330 U			330					
2-Nitroaniline	1100 U			990 U			1000 U			830 U			830					
Dimethylphthalate	46 L J AH			390 U			420 U			330 U			330					
Acenaphthylene	450 U			390 U			420 U			330 U			330					
2,6-Dinitrotoluene	450 U			390 U			420 U			330 U			330					
3-Nitroaniline	1100 U			990 U			1000 U			830 U			830					

Station Location	SS-6-10			SS-8-10			SS-8-20			Method Blank			CRQL					
Sample I.D.	YX349			YX353			YX354			SBLK2								
Date of Collection	1/8/97			1/8/97			1/8/97											
Semivolatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Acenaphthene	450 U			390 U			120 L	J	A	330 U			330					
2,4-Dinitrophenol	1100 U	J	E	990 U	J	E	1000 U	J	E	830 U			830					
4-Nitrophenol	1100 U	J	E	990 U	J	E	1000 U	J	E	830 U			830					
Dibenzofuran	450 U			390 U			54 L	J	A	330 U			330					
2,4-Dinitrotoluene	450 U	J	E	390 U	J	E	420 U	J	EG	330 U			330					
Diethylphthalate	450 U			390 U			35 L	J	AH	330 U			330					
4-Chlorophenyl phenyl ether	450 U			390 U			420 U			330 U			330					
Fluorene	49 L	J	A	390 U			150 L	J	A	330 U			330					
4-Nitroaniline	1100 U	J	E	990 U	J	E	1000 U	J	E	830 U			830					
4,6-Dinitro-2-methylphenol	1100 U			990 U			1000 U			830 U			830					
N-Nitrosodiphenylamine	450 U			390 U			420 U			330 U			330					
4-Bromophenyl phenyl ether	450 U			390 U			420 U			330 U			330					
Hexachlorobenzene	450 U			390 U			420 U			330 U			330					
Pentachlorophenol	1100 U			990 U			1000 U			830 U			830					
Phenanthrene	120 L	J	A	390 U			1400			330 U			330					
Anthracene	450 U			390 U			550			330 U			330					
Carbazole	450 U			390 U			410 L	J	A	330 U			330					
Di-n-butylphthalate	2000			390 U			420 U	J	C	330 U			330					
Fluoranthene	46 L	J	A	390 U			2100			330 U			330					
Pyrene	42 L	J	A	390 U			1300		G	330 U			330					
Butylbenzylphthalate	450 U			390 U			420 U			330 U			330					
3,3'-Dichlorobenzidine	450 U			390 U			420 U			330 U			330					
Benzo(a)anthracene	450 U			390 U			980			330 U			330					
Chrysene	40 L	J	A	390 U			1000			330 U			330					
bis(2-Ethylhexyl)phthalate	2000		H	390 U	J	C	16000			27 L	J	AC	330					
Di-n-octylphthalate	43 L	J	AH	390 U			420 U			330 U			330					
Benzo(b)fluoranthene	450 U			390 U			670			330 U			330					
Benzo(k)fluoranthene	450 U			390 U			630			330 U			330					
Benzo(a)pyrene	450 U			390 U			830			330 U			330					
Indeno(1,2,3-cd)pyrene	450 U			390 U			420			330 U			330					
Dibenz(a,h)anthracene	450 U			390 U			250 L	J	A	330 U			330					
Benzo(g,h,i)perylene	450 U			390 U			440			330 U			330					
Percent Solids	73 %			84 %			79 %			N/A			N/A					

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

BG-Background Sample

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," February 1994.

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
- NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX336

Lab Name: SWL-TULSA

Contract: 68-D5-0021

Lab Code: SWOK

Case No.: 25268

SAS No.:

SDG No.: YX327

Matrix: (soil/water) WATER

Lab Sample ID: 28122.04

Sample wt/vol: 5.0

(g/mL) ML

Lab File ID: C23399.D

Level: (low/med) LOW

Date Received: 01/10/97

% Moisture: not dec. _____

Date Analyzed: 01/17/97

GC Column: DB-624

ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	13.621	28	J
2. 110-43-0	2-Heptanone	14.043	68	NJ
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

FORM I VOA-TIC

OLM03.0

58

AS, ESAT

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX349

Lab Name: SWL-TULSA

Contract: 68-D5-0021

Lab Code: SWOK

Case No.: 25268

SAS No.:

SDG No.: YX327

Matrix: (soil/water) SOIL

Lab Sample ID: 28122.05

Sample wt/vol: 5.0 (g/mL) G

Lab File ID: L24127.D

Level: (low/med) LOW

Date Received: 01/10/97

% Moisture: not dec. 27

Date Analyzed: 01/13/97

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 15 13

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	12.359	10	JB
2.	UNKNOWN	14.296	9	J
3.	UNKNOWN	15.002	12	J
4.	UNKNOWN	15.089	28	J
5.	UNKNOWN	15.389	7	J
6.	UNKNOWN	15.563	20	J
7.	UNKNOWN	15.814	26	J
8.	Benzene, -dichloro-	15.950	8	J
9.	UNKNOWN	16.095	10	J
10.	Naphthalene, decahydro-	16.336	16	J
11.	UNKNOWN	16.520	12	J
12.	Benzene, ethyl-dimethyl-	16.733	7	J
13.	UNKNOWN	16.936	23	JB
14.	UNKNOWN	17.140	12	J
15.	UNKNOWN CYCLOALKANE	18.273	7	J
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1,13 found in method blanks

FORM I VOA-TIC

OLM03.0

65

AS, ESAT
2/11/97

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX353

Lab Name: SWL-TULSA

Contract: 68-D5-0021

Lab Code: SWOK

Case No.: 25268

SAS No.:

SDG No.: YX327

Matrix: (soil/water) SOIL

Lab Sample ID: 28122.06

Sample wt/vol: 5.0 (g/mL) G

Lab File ID: L24128.D

Level: (low/med) LOW

Date Received: 01/10/97

% Moisture: not dec. 16

Date Analyzed: 01/13/97

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 31

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1.	UNKNOWN	12.444	8	JB
2.	UNKNOWN	15.856	7	J
3.	UNKNOWN	16.927	8	JB
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1,3 found in method blanks

FORM I VOA-TIC

OLM03.0

90
AS, ESAT
1/13/97

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX354

Lab Name: SWL-TULSA

Contract: 68-D5-0021

Lab Code: SWOK

Case No.: 25268

SAS No.:

SDG No.: YX327

Matrix: (soil/water) SOIL

Lab Sample ID: 28122.07

Sample wt/vol: 1.0 (g/mL) G

Lab File ID: L24134.D

Level: (low/med) LOW

Date Received: 01/10/97

% Moisture: not dec. 21

Date Analyzed: 01/13/97

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: ~~30~~ 28

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN CYCLOALKANE	10.590	130	J
2.	Cyclohexane, trimethyl-	12.805	120	J
3.	UNKNOWN HYDROCARBON	13.103	130	J
4.	UNKNOWN	13.267	53	J
5.	UNKNOWN	13.827	92	J
6.	UNKNOWN CYCLOALKANE	14.011	140	J
7.	UNKNOWN HYDROCARBON	14.253	710	J
8.	UNKNOWN	14.359	780	J
9.	UNKNOWN	14.475	760	J
10.	Benzene, ethyl-methyl-	15.056	1400	J
11.	UNKNOWN	15.163	2200	J
12.	Benzene, ethyl-methyl-	15.356	640	J
13.	Benzene, trimethyl-	15.550	2600	J
14.	UNKNOWN	15.734	590	J
15.	UNKNOWN ALKYL BENZENE	15.889	2000	J
16.	Benzene, trimethyl-	16.006	1800	J
17.	UNKNOWN ALKYL BENZENE	16.238	480	J
18.	UNKNOWN	16.316	880	J
19. 1120-21-4	Undecane	16.461	1000	NJ
20.	UNKNOWN ALKYL BENZENE	16.626	860	J
21.	UNKNOWN ALKYL BENZENE	16.830	380	J
22.	UNKNOWN	16.917	800	JB
23.	UNKNOWN	17.102	380	J
24.	UNKNOWN ALKYL BENZENE	17.189	440	J
25.	UNKNOWN	17.461	230	J
26.	UNKNOWN	17.635	380	J
27.	UNKNOWN	17.810	120	J
28.	UNKNOWN	17.956	160	J
29.	UNKNOWN	18.082	150	J
30. 91-20-3	Naphthalene	18.382	100	NJ

22 found in method blanks

30 semivolatile target analyte.

FORM I VOA-TIC

OLM03.0

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX327

ab Name: SWL-TULSA

Contract: 68-D5-0021

Lab Code: SWOK

Case No.: 25268

SAS No.:

SDG No.: YX327

Matrix: (soil/water) WATER

Lab Sample ID: 28122.01

Sample wt/vol: 1000

(g/mL) ML

Lab File ID: M4466.D

Level: (low/med) LOW

Date Received: 01/10/97

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 01/10/97

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 01/17/97

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 7.6

Number TICs found: 17 8

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN ORGANIC ACID	3.585	3	J
2.	UNKNOWN	3.990	2	JB
3.	UNKNOWN	4.592	280	J
4.	UNKNOWN	4.721	4	JB
5. 110-43-0	2-Heptanone	4.859	42	NJ
6. 111-76-2	Ethanol, 2-butoxy	5.057	170	NJ
7.	UNKNOWN	5.235	4	JB
8.	UNKNOWN	5.610	5	JB
9.	UNKNOWN	5.670	4	J
10. 111-90-0	Ethanol, 2-(2-ethoxyethoxy)	6.431	2	NJ
11.	UNKNOWN	6.767	3	J
12. 112-07-2	2-Butoxyethyl acetate	7.656	110	NJ
13. 95-16-9	Benzothiazole	9.633	2	NJ
14. 143-07-7	Dodecanoic acid	12.752	3	NJ
15.	UNKNOWN	15.573	3	J
16.	UNKNOWN	15.892	4	J
17.	UNKNOWN	16.031	8	J
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

10 unknown

15 laboratory artifact (phthalate)

7,8 found in SBLK1

1-7 elute before phenol (1st SVOA target analyte)

FORM I SV-TIC

OLM03.0

378
AS, ESAT

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX335

Lab Name: SWL-TULSA

Contract: 68-D5-0021

Lab Code: SWOK

Case No.: 25268

SAS No.:

SDG No.: YX327

Matrix: (soil/water) WATER

Lab Sample ID: 28122.03

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: M4470.D

Level: (low/med) LOW

Date Received: 01/10/97

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 01/10/97

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 01/17/97

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 7.5

Number TICs found: 2 |

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	5.233	5	JB
2.	UNKNOWN ORGANIC ACID	13.169	2	J
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1 found in SBLKI & elutes before phenol (st+ SVOA target analyte)

Data file : m4470.d

Matrix : WATER

CAS #	Compound	R.T.	Estimated Conc.
1 760-21-4	Pentane, 3-methylene	4.798	2.17
2 617-78-7	Pentane, 3-ethyl	5.617	5.51
3 4923-77-7	Cyclohexane, 1-ethyl-2-methyl, cis-unknown	5.677	4.10

Concentration Units: Water: UG/L Soil: UG/KG

1-2 found in SBLK1

1 elutes before phenol (1st SVOA target analyte)

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX336

Lab Name: SWL-TULSA

Contract: 68-D5-0021

Lab Code: SWOK

Case No.: 25268

SAS No.:

SDG No.: YX327

Matrix: (soil/water) WATER

Lab Sample ID: 28122.04

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: M4471.D

Level: (low/med) LOW

Date Received: 01/10/97

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 01/10/97

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 01/17/97

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: 6.2

Number TICs found: 26, 15

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN ORGANIC ACID	3.624	4	J
2. 68-12-2	Formamide, N,N-dimethyl-	3.713	2	NJ
3.	UNKNOWN ORGANIC ACID	3.990	3	J
4.	UNKNOWN	4.602	380	J
5.	Acetoxy propanol unknown	4.730	6	J
6. 110-43-0	2-Heptanone	4.869	66	NJ
7. 111-76-2	Ethanol, 2-butoxy-	5.077	230	NJ
8.	UNKNOWN	5.235	4	JB
9.	UNKNOWN	5.363	2	JB
10.	Heptene, -methyl-	5.620	5	J
11.	Ethanol, -[(-ethoxyethoxy)-	6.441	4	J
12.	UNKNOWN ORGANIC ACID	6.777	3	J
13.	UNKNOWN	6.886	2	J
14.	Heptanone, -methyl-	7.143	3	J
15. 112-07-2	2-Butoxyethyl acetate	7.667	160	NJ
16. 1119-40-0	Pentanedioic acid, dimethylester	8.310	2	NJ
17. 65-85-0	Benzoic Acid	8.616	3	NJ
18.	UNKNOWN ORGANIC ACID	8.676	2	J
19. 119-36-8	Methyl Salicylate	9.210	2	NJ
20. 95-16-9	Benzothiazole	9.636	3	NJ
21. 85-44-9	Phthalic anhydride unknown	10.645	3	NJ
22. 143-07-7	Dodecanoic acid	12.767	6	NJ
23.	Benzene, -methyl- (methylet	12.866	3	J
24. 85-44-9	Phthalic anhydride	15.581	3	NJ
25.	UNKNOWN	15.900	6	J
26.	UNKNOWN	16.040	11	J
27.				
28.				
29.				
30.				

11,23 unknown

24 laboratory artifact (phthalate)

8,10 found in SBLK1

1-9 elute before phenol (1st SVOA target analyte)

FORM I SV-TIC

401803.0

AS, ESAT

Data file : m4471.d

Matrix : WATER

CAS #	Compound	R.T.	Estimated Conc.
1 591-21-9	Cyclohexane, 1,3-dimethyl- unknown	5.679	3.70
112-36-7	Ethane, 1,1'-oxybis[2-ethoxy-]	6.440	3.57 1-20-97
2 291-64-5	Cycloheptane- unknown	6.796	2.84
3 541-02-6	Cyclopentasiloxane, decamethyl-	8.448	2.14
4 56762-00-6	Pentane, 2,2'-oxybis- unknown	8.745	2.31
5 629-92-5	Nonadecane- unknown alkane	22.06	2.03

Concentration Units: Water: UG/L Soil: UG/KG

3 laboratory artifact (column bleed) & found in SBLK1

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX349

Lab Name: SWL-TULSA

Contract: 68-D5-0021

Lab Code: SWOK

Case No.: 25268

SAS No.:

SDG No.: YX327

Matrix: (soil/water) SOIL

Lab Sample ID: 28122.05

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: M4493.D

Level: (low/med) LOW

Date Received: 01/10/97

% Moisture: 27 decanted: (Y/N) N

Date Extracted: 01/10/97

Concentrated Extract Volume: 500(uL)

Date Analyzed: 01/17/97

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 7.9

Number TICs found: 33 30

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.378	1000	J
2. 123-42-2	2-Pentanone, 4-hydroxy-4-met	4.288	6900	NJAB
3. 489-39-4	1H-Cycloprop[e]azulene, deca	11.929	860	NJ
4. 483-77-2	Naphthalene, 1,2,3,4-tetrahy	12.650	640	NJ
5. 10544-50-0	Sulfur, mol. (S8) unknown	12.690	590	NJ
6.	UNKNOWN	14.155	930	J
7. 0-00-0	(1H)2,3-Dihydroindene, 1,1,3	14.286	880	NJ
8.	UNKNOWN	16.130	1700	J
9.	UNKNOWN ORGANIC ACID	16.454	560	J
10.	UNKNOWN	16.970	2600	J
11.	Phenanthrene, methyl--(-met	17.750	9300	J
12. 78-42-2	Phosphoric acid, tris(2-ethy	18.736	6000	NJ
13.	UNKNOWN PHTHALATE	19.286	870	J
14.	UNKNOWN	19.990	8600	J
15.	UNKNOWN	20.113	3000	J
16.	Benzo[d]dipyran--prop unknown	21.679	1300	J
17.	Benzo[d]dipyran--prop unknown	21.854	5500	J
18.	UNKNOWN	21.997	980	J
19.	Benzo[d]dipyran--prop unknown	22.768	4600	J
20.	UNKNOWN	22.860	850	J
21.	UNKNOWN	23.025	1800	J
22.	UNKNOWN	23.200	3400	J
23.	Cholestan--one, --dimethyl-,	23.251	8200	J
24.	UNKNOWN	23.303	2400	J
25.	UNKNOWN	23.477	15000	J
26.	UNKNOWN	23.663	3100	J
27.	UNKNOWN	23.724	25000	J
28.	UNKNOWN	23.807	7000	J
29.	UNKNOWN	23.920	6700	J
30.	UNKNOWN	24.033	5900	J

23, 3, 7 unknown

4 substituted naphthalene

11 substituted phenanthrene

12 Phosphoric acid, tris(2-ethylhexyl) ester

13 laboratory artifact (phthalate)

2 found in SBLK2

FORM I SV-TIC

1-2 elute before phenol (1st SVOA target analyte)

OLM03.0

AS, ESAT

495

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX349

Lab Name: SWL-TULSA

Contract: 68-D5-0021

Lab Code: SWOK

Case No.: 25268

SAS No.:

SDG No.: YX327

Matrix: (soil/water) SOIL

Lab Sample ID: 28122.05

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: M4493.D

Level: (low/med) LOW

Date Received: 01/10/97

% Moisture: 27 decanted: (Y/N) N

Date Extracted: 01/10/97

Concentrated Extract Volume: 500(uL)

Date Analyzed: 01/17/97

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.9

Number TICs found: 33, 30

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	24.290	3800	J
2.	UNKNOWN	24.372	3700	J
3.	UNKNOWN	24.691	8400	J
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

Data file : m4493.d

Matrix : SOIL

CAS #	Compound	R.T.	Estimated Conc.
1 31295-56-4	Dodecane, 2,6,11-trimethyl-	9.962	1003.12
2 3891-98-3	Dodecane, 2,6,10-trimethyl-	11.06	928.55
3 629-62-9	Pentadecane	11.87	767.79
4 17081-50-4	Pentadecane, 2,6,10,13-tetramethyl-	13.91	713.36
5 1112-66-9	Silane, tetra-2-propenyl- unknown	16.06	446.41
6 638-36-8	Hexadecane, 2,6,10,14-tetramethyl- unknown	16.59	1844.66
7 112-95-8	Eicosane	17.20	1032.92
8 646-31-1	Tetracosane	18.32	5381.83
9 638-67-5	Tricosane	18.85	7140.28
10 646-31-1	Tetracosane	19.66	3592.55
11 112-95-8	Eicosane	19.84	6651.74
12 629-97-0	Docosane	20.31	5423.28
13 6079-19-2	Cholestane, 4,5-epoxy-, (4.alpha.,5.alph-	20.43	1643.42
14 112-95-8	Eicosane	20.77	7759.64
15	UNKNOWN ALKANE	20.87	1995.56
16 6418-44-6	Heptadecane, 3-methyl-	21.10	997.15
17 112-95-8	Eicosane	21.19	3775.56
18	UNKNOWN ALKANE	21.30	912.46
19 629-78-7	Heptadecane	21.61	5510.81
20 629-94-7	Heneicosane	22.04	1848.86
21 593-45-3	Octadecane	22.49	3361.80
22 112-89-0	Octadecane, 1-bromo-	22.94	3753.35

Concentration Units: Water: UG/L Soil: UG/KG

13 unknown

1-4, 7-12, 14, 16, 17, 19-22 unknown alkane

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX353

Lab Name: SWL-TULSA

Contract: 68-D5-0021

Lab Code: SWOK

Case No.: 25268

SAS No.:

SDG No.: YX327

Matrix: (soil/water) SOIL

Lab Sample ID: 28122.06

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: M4492.D

Level: (low/med) LOW

Date Received: 01/10/97

% Moisture: 16 decanted: (Y/N) N

Date Extracted: 01/10/97

Concentrated Extract Volume: 500(uL)

Date Analyzed: 01/17/97

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.2

Number TICs found: 9

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.299	94	J
2.	UNKNOWN	3.388	350	J
3.	UNKNOWN	3.447	140	J
4. 141-78-6	Ethyl Acetate	3.714	140	NJB
5. 141-79-7	3-Penten-2-one, 4-methyl-	3.823	410	NJAB
6.	UNKNOWN	4.040	83	JB
7. 123-42-2	2-Pentanone, 4-hydroxy-4-met	4.297	6500	NJAB
8.	UNKNOWN	5.226	130	JB
9.	UNKNOWN	25.729	82	J
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

4, 5, 7, 8 found in SBLK2

1-8 elute before phenol (1st SVOA target analyte)

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX354

Lab Name: SWL-TULSA

Contract: 68-D5-0021

Lab Code: SWOK

Case No.: 25268

SAS No.:

SDG No.: YX327

Matrix: (soil/water) SOIL

Lab Sample ID: 28122.07

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: M4497.D

Level: (low/med) LOW

Date Received: 01/10/97

% Moisture: 21 decanted: (Y/N) N

Date Extracted: 01/10/97

Concentrated Extract Volume: 500(uL)

Date Analyzed: 01/17/97

Injection Volume: 2.0(uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.6

Number TICs found: 23, 18

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	3.370	1300	J
2.	UNKNOWN ORGANIC ACID	3.628	430	J
3.	UNKNOWN ORGANIC ACID	3.817	4600	J
4.	UNKNOWN ORGANIC ACID	4.244	380	J
5. 123-42-2	2-Pentanone, 4-hydroxy-4-met	4.293	5400	NJAB
6.	UNKNOWN ORGANIC ACID	5.971	700	J
7. 95-36-3	1,2,4-Trimethylbenzene	6.348	380	NJ
8.	UNKNOWN	8.018	220	J
9.	Benzene, -tetramethyl-	8.636	280	J
10. 57-10-3	Hexadecanoic acid	15.727	1600	NJ
11. 203-64-5	4H-Cyclopenta[def]phenanthre	15.888	690	NJ
12.	UNKNOWN	16.455	3800	J
13. 19407-28-4	Phenanthrene, 1,2,3,4,4a,9,1	16.698	380	NJ
14.	UNKNOWN	16.809	570	J
15.	UNKNOWN	16.961	3600	J
16.	UNKNOWN	20.408	740	J
17.	UNKNOWN	20.798	800	J
18.	UNKNOWN PAH	21.004	1400	J
19.	UNKNOWN	21.096	1200	J
20. 192-97-2	Benzo[e]pyrene unknown PAH	21.230	1200	NJ
21.	UNKNOWN ORGANIC ACID	21.889	1900	J
22.	UNKNOWN PAH	23.032	790	J
23.	UNKNOWN	23.526	1300	J
24.				
25.				
26.				
27.				
28.				
29.				
30.				

11. unknown
13. substituted phenanthrene
5 found in SBLK2
1-5 elute before phenol (1st SVOA target analyte)

FORM I SV-TIC

OLM03.0

AS, ESAT
2/13/97

592

Data file : m4497.d

Matrix : SOIL

CAS #	Compound	R.T.	Estimated Conc.
1 3891-98-3	Dodecane, 2,6,10-trimethyl-	11.05	315.45
2 31295-56-4	Dodecane, 2,6,11-trimethyl-	13.90	357.80
3 638-36-8	Hexadecane, 2,6,10,14-tetramethyl-	14.66	555.58
4 4926-78-7	Cyclohexane, 1-ethyl-4-methyl-, cis-	15.30	354.00
5 629-94-7	Heneicosane	16.58	1098.56
6 112-95-8	Eicosane	17.76	125.94
7 593-45-3	Octadecane	18.31	120.98
8 31295-56-4	Dodecane, 2,6,11-trimethyl-	18.84	133.52
9 630-01-3	Hexacosane	19.35	137.96
10 638-68-6	Triacontane	19.84	140.67
11 55320-06-4	Heneicosane, 11-decyl-	20.31	2655.89
12 112-95-8	Eicosane	20.76	2637.52
13 112-95-8	Eicosane	21.18	1772.95
14 14982-53-7	Cholestane	21.49	1502.35
15 593-49-7	Heptacosane	21.61	2860.83
16 544-85-4	Dotriacontane	22.03	1285.01
17 36728-72-0	28-Nor-17.beta.(H)-hopane	22.47	3539.45
18	UNKNOWN-ALKANE	22.66	2085.62
19 630-01-3	Hexacosane	22.93	2033.50
20 17312-55-9	Decane, 3,8-dimethyl-	23.46	2417.90

Concentration Units: Water: UG/L Soil: UG/KG

4,14,17 unknown

1-3,5-13,15,16,19,20 unknown alkane

TPO: [] FYI [X] Attention [] Action

Region 9

ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 25268 Memo #01 LABORATORY SWOK
 SDG NO. YX354 SITE NAME Victoria Golf Course
 SOW OLM03.2 REVIEW COMPLETION DATE February 21, 1997
 REVIEWER [] ESD [X] ESAT REVIEWER'S NAME Adriane Scheele
 NO. OF SAMPLES 4 WATER 3 SOIL OTHER

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES/PRESERVATION	<u> O </u>	<u> O </u>	<u> </u>	<u> </u>
2. GC-MS TUNE/GC PERFORMANCE	<u> O </u>	<u> O </u>	<u> </u>	<u> </u>
3. INITIAL CALIBRATIONS	<u> O </u>	<u> O </u>	<u> </u>	<u> </u>
4. CONTINUING CALIBRATIONS	<u> X </u>	<u> X </u>	<u> </u>	<u> </u>
5. FIELD QC	<u> O </u>	<u> X </u>	<u> </u>	<u> </u>
6. LABORATORY BLANKS	<u> X </u>	<u> X </u>	<u> </u>	<u> </u>
7. SURROGATES	<u> O </u>	<u> O </u>	<u> </u>	<u> </u>
8. MATRIX SPIKE/DUPLICATES	<u> O </u>	<u> O </u>	<u> </u>	<u> </u>
9. REGIONAL QC	<u> N/A </u>	<u> N/A </u>	<u> </u>	<u> </u>
10. INTERNAL STANDARDS	<u> O </u>	<u> X </u>	<u> </u>	<u> </u>
11. COMPOUND IDENTIFICATION	<u> O </u>	<u> O </u>	<u> </u>	<u> </u>
12. COMPOUND QUANTITATION	<u> O </u>	<u> O </u>	<u> </u>	<u> </u>
13. SYSTEM PERFORMANCE	<u> O </u>	<u> O </u>	<u> </u>	<u> </u>
14. OVERALL ASSESSMENT	<u> X </u>	<u> X </u>	<u> </u>	<u> </u>

O = Data have no problems or problems that do not affect data quality.

X = Data are qualified due to minor problems.

M = Data are qualified due to major problems.

Z = Data are unacceptable.

N/A = Not Applicable

TPO ACTION: None.

TPO ATTENTION: (1) Several results for volatile and semivolatile target analytes are qualified as nondetected and estimated (U,J) due to contamination in laboratory blanks. (2) Several results for volatile and semivolatile target analytes are estimated (J) due to calibration problems. (3) Several results for semivolatile target analytes in one of the method blanks are estimated (J) due to a low internal standard response.

AREAS OF CONCERN: None.

In Reference to Case No(s) .:

25268 Memo #01

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone Record Log #1

Date of Call: February 13, 1997

Laboratory Name: Southwest Labs of Oklahoma,
Inc. (SWOK)

Lab Contact: Harry Borg

Region: 9

Regional Contact: Adriane Scheele, ESAT/Lockheed

Call Initiated By: Laboratory X Region

In reference to data for the following:

Sample Delivery Group (SDG) YX354 for
Volatile and Semivolatile Analyses

Summary of Questions/Issues Discussed:

1. [VOA] Naphthalene is reported as a tentatively identified compound (TIC) at a retention time of 18.382 min. in Form 1E (page 100) for the volatile fraction of sample YX354. Section 11.1.2.2 of Exhibit D-38/VOA states that semivolatile target compounds listed in Exhibit C are not to be reported as TICs. Please clarify why naphthalene, a semivolatile target compound, is reported or submit a corrected Form 1E.
2. [BNA] The response for internal standard perylene-d₁₂ in semivolatile method blank SBLK3 did not meet the quality control (QC) requirements listed in Section 11.3.6 of Exhibit D-50/SVOA. Were the corrective actions specified in Section 12.1.5.4 of Exhibit D-55/SVOA performed? Please clarify.

Summary of Resolution:

1. Corrected Form 1E was received at ESAT by fax on February 20, 1997.
2. Corrective action was not taken as per Section 12.1.5.4 of Exhibit D-55/SVOA since the blank in question (SBLK3) was the blank from sample reextracts. There was insufficient sample to do a second reextraction. The problem was noted in the SDG narrative.

Adriane Scheele
Signature

February 21, 1997
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy

Contract Laboratory Program
REGION 9/LABORATORY COMMUNICATION SYSTEM
CSF COMPLETENESS EVIDENCE AUDIT PROGRAM
Telephone Communication Summary Form

AUDIT NO.: 2/97/17 LAB CONTACT: Harry Borg
CASE NO.: 25268 Memo #01 LAB CODE: SWOK
SDG NO.: YX354 LAB NAME: Southwest Labs of
Oklahoma, Inc.
FILENAME: 25268M01.TCS LAB LOCATION: Broken Arrow, OK

Summary of Questions/Issues Discussed:

The following items were noted during the audit of sample delivery group (SDG) YX354. Please note the corrections in your copy.

1. Page numbers 1 through 16 and 17 through 18 are incorrectly listed in Sections 2 and 3, respectively, of Form DC-2-1. The auditor has manually corrected Form DC-2-1 with page numbers 1 through 15 and 16 through 18 for Sections 2 and 3, respectively.
2. An unnumbered page was found between pages 54 and 55. The auditor has labeled it as page 54A.
3. A handwritten SDG narrative which was not paginated was found after page 962 of the data package. The auditor has paginated the narrative as 963 through 965. The auditor has also included this narrative and page numbers to Section 10 of Form DC-2-4.

Summary of Resolution:

A laboratory response is not required.

Adrian Schulte
Auditor, ESAT/Lockheed

February 13, 1997
Date of Contact

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy

Lockheed Martin Environmental Services

Environmental Services Assistance Team, Region 9

301 Howard Street, Suite 970, San Francisco, CA 94105-2241

Phone: 415-278-0570 Fax: 415-278-0588

MEMORANDUM

TO: Rachel Loftin
Site Assessment Manager
States Planning and Assessment Office, SFD-5

THROUGH: Rose Fong
ESAT Regional Project Officer
Quality Assurance (QA) Office, PMD-3

FROM: Jack Berges
Team Manager
Environmental Services Assistance Team (ESAT)

ESAT Contract No.: 68D60005
Work Assignment No.: 9-96-0-4
Technical Direction No.: 9604112

DATE: February 10, 1997

SUBJECT: Review of Analytical Data

Attached are comments resulting from ESAT Region 9 validation of the following analytical data:

SITE: Victoria Golf Course
SITE ACCOUNT NO.: ZZ
CERCLIS ID NO.: CAD980818926
CASE NO.: 25218 Memo #01
SDG NO.: YX323

LABORATORY: American Technical & Analytical Services (ATAS)
ANALYSIS: Volatiles and Semivolatiles

SAMPLES: 12 Water Samples (see Case Summary)

COLLECTION DATE: December 9 through 13, 1996

REVIEWER: Dina David-Bailey, ESAT/Lockheed

The comments and qualifications presented in this report have been reviewed and approved by the EPA Work Assignment Manager (WAM) for the ESAT Contract, whose signature appears above.

If there are any questions, please contact Deirdre O'Leary (ESAT/Lockheed) at (415) 278-0585 or Rose Fong (QA Office/EPA) at (415) 744-1534.

Attachment

cc: Larry Marchin, TPO USEPA Region 7

TPO: ☐ FYI ☒ Attention ☐ Action

SAMPLING ISSUES: ☒ Yes ☐ No

Data Validation Report

Case No.: 25218 Memo #01
 Site: Victoria Golf Course
 Laboratory: American Technical & Analytical Services (ATAS)
 Reviewer: Dina David-Bailey, ESAT/Lockheed
 Date: February 10, 1997

I. Case Summary

SAMPLE INFORMATION:

VOA and BNA Samples: YX322 through YX326, YX328 through YX333, and YX363
 Concentration and Matrix: Low Level Groundwater
 Analysis: Volatiles and Semivolatiles
 SOW: OLM03.2
 Collection Date: December 9 through 13, 1996
 Sample Receipt Date: December 11, 13, and 14, 1996
 BNA Extraction Date: December 12 and 16, 1996
 VOA Analysis Date: December 12 and 17, 1996
 BNA Analysis Date: December 18, 30, and 31, 1996 and January 17, 1997

FIELD QC:

Trip Blanks (TB): None
 Field Blanks (FB): YX331
 Equipment Blanks (EB): YX330, YX332, and YX333
 Background Samples (BG): YX324 and YX325
 Field Duplicates (D1): YX326 and YX363

METHOD BLANKS AND ASSOCIATED SAMPLES:

VLKDM: YX323, YX323MS, YX323MSD, YX328, and YX330
 VLKDP: YX322, YX324 through YX326, YX329, YX331 through YX333, YX363, and VHBLKDP
 SBLKEA: YX322, YX322RE, YX324 through YX326, YX326RE, YX329, YX329RE, YX331 through YX333, and YX363
 SBLKEU: YX323, YX323MS, YX323MSD, YX328, and YX330

TABLES:

1A: Analytical Results with Qualifications
 1B: Data Qualifier Definitions for Organic Data Review
 2: Volatiles and Semivolatiles: Continuing Calibrations

TPO ACTION:

None.

TPO ATTENTION:

(1) Several volatile results are qualified as nondetected and estimated (U,J) due to contamination in the storage blank. (2) Several results are estimated (J) due to calibration problems. (3) Several semivolatile results are estimated (J) due to low internal standard areas.

RE-Reanalysis; MS-Matrix Spike; MSD-Matrix Spike Duplicate;
 VHBLK-Storage Blank
 97-02-10-HDB-01/25218M01.RPT

SAMPLING ISSUES:

The detected result for di-n-butylphthalate in sample YX323 is qualified as nondetected and estimated (U,J) due to contamination in equipment blank YX330. Di-n-butylphthalate was found in equipment blank YX330 at a concentration of 0.5 µg/L, which is less than the CRQL of 10 µg/L.

ADDITIONAL COMMENTS:

A temperature of 10°C was measured in the cooler containing samples YX324, YX326, YX329, YX331, and YX332, which were received at the laboratory on December 13, 1996. This temperature exceeds the 4°C ±2°C sample preservation criterion.

No Tentatively Identified Compounds (TICs) were found in samples YX323, YX325, YX326, YX329, YX331 through YX333, and YX363 for the volatile fraction. The TICs found in the remaining samples for the volatile fraction are reported on the Form 1Es. The TICs found in all of the samples for the semivolatile fraction are reported on the Form 1Fs and in the sample delivery group (SDG) narrative included in this report. The user should note that the SDG narrative summarizes TICs which are alkanes.

All method requirements specified in the USEPA Contract Laboratory Program (CLP) Statement of Work (SOW) for Organic Analysis, OLM03.2, have been met.

This report was prepared according to the SOW and the document "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," February 1994.

II. Validation Summary

	VOA		BNA	
	Acceptable/Comment		Acceptable/Comment	
HOLDING TIMES	[YES]	[]	[YES]	[]
GC/MS TUNE	[YES]	[]	[YES]	[]
CALIBRATIONS	[NO]	[D]	[NO]	[C,D]
FIELD QC	[NO]	[B]	[NO]	[B]
LABORATORY BLANKS	[NO]	[B]	[YES]	[B]
SURROGATES	[YES]	[]	[YES]	[]
MATRIX SPIKE/DUPLICATES	[YES]	[]	[YES]	[F]
INTERNAL STANDARDS	[YES]	[]	[NO]	[E]
COMPOUND IDENTIFICATION	[YES]	[G]	[YES]	[G]
COMPOUND QUANTITATION	[YES]	[A]	[YES]	[A]
SYSTEM PERFORMANCE	[YES]	[]	[YES]	[]

N/A = Not Applicable

III. Validity and Comments

- A. The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.

- All results below the contract required quantitation limits

Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

- B. The following detected results are qualified as nondetected and estimated due to laboratory, equipment, and field blank contamination. The results are flagged "U,J" in Table 1A.

- Methylene chloride in volatile samples YX322, YX324 through YX326, YX328, YX329, and YX363
- Di-n-butylphthalate in semivolatile sample YX323

Methylene chloride was found in the storage blank, equipment blanks YX332 and YX333, and field blank YX331. Di-n-butylphthalate was found in equipment blank YX330. (See Table 1A for concentrations.) The results for the samples listed above are considered nondetected and estimated (U,J) and the quantitation limits have been increased according to the blank qualification rules presented below.

No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for the common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result (U,J). If the sample result is less than the CRQL, the result is reported as nondetected (U,J) at the CRQL.

Although bis(2-ethylhexylphthalate) was found in equipment blank YX330 at a concentration of 1 µg/L and di-n-octylphthalate in method blank SBLKEU at a concentration of 0.5 µg/L, no data are qualified because these analytes were not found in any of the associated semivolatile samples.

A storage blank is laboratory reagent water stored in a vial in the same area as the field samples. The storage blank is used to determine the level of contamination introduced by the laboratory during sample storage prior to analysis.

An equipment blank is clean water that has been collected as a sample using decontaminated sampling equipment. The intent of an equipment blank is to monitor for contamination introduced by the sampling activity, although any laboratory introduced contamination will also be present.

A field blank is clean water prepared as a sample in the field by the sampler and shipped to the laboratory with the samples. A field blank is intended to detect contaminants that may have been introduced in the field, although any laboratory introduced contamination will also be present. Contaminants that are found in the field blank which are absent in the laboratory method blank could be indicative of a field quality control (QC) problem, a deficiency in the bottle preparation procedure, a difference in preparation of the laboratory and field blanks, or other indeterminate error.

- C. The quantitation limits for the following semivolatile analytes are estimated due to large percent relative standard deviations (%RSDs) in the initial calibration. The results are flagged "J" in Table 1A.

- 2,4-Dinitrophenol and 4-nitroaniline in samples YX323, YX328, and YX330

Percent RSDs of 31.6 and 33.1 were observed for 2,4-dinitrophenol and 4-nitroaniline, respectively, in the initial calibration

performed January 7, 1997. These values exceed the $\leq 30.0\%$ QC advisory validation criterion.

The initial calibration demonstrates that the instrument is capable of acceptable performance at the beginning of the analytical sequence and of producing a linear calibration curve.

- D. The detected result and quantitation limits for the following analytes are estimated due to large percent differences (%Ds) in the continuing calibrations. The results are flagged "J" in Table 1A.
- trans-1,3-Dichloropropene in volatile samples YX322, YX324 through YX326, YX329, YX331 through YX333, YX363, method blank VBLKDP, and storage blank VHBLKDP
 - Pyrene and di-n-octylphthalate in semivolatile samples YX322, YX325, YX329, YX333, and YX363

Percent differences exceeding the $\pm 25.0\%$ QC advisory validation criterion were observed for the analytes listed above in the continuing calibrations performed December 17 and 31, 1996 (see Table 2).

The continuing calibration checks the instrument performance daily and produces the relative response factors for target analytes that are used for quantitation.

- E. The detected results and quantitation limits for the following semivolatile analytes are estimated due to low internal standard areas. The results are flagged "J" in Table 1A.
- 4,6-Dinitro-2-methylphenol, N-nitrosodiphenylamine, 4-bromophenyl phenyl ether, hexachlorobenzene, pentachlorophenol, phenanthrene, anthracene, carbazole, di-n-butylphthalate, fluoranthene, pyrene, butylbenzylphthalate, 3,3'-dichlorobenzidine, benzo(a)anthracene, chrysene, and bis(2-ethylhexyl)phthalate in samples YX322 and YX326
 - Di-n-octylphthalate, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene in samples YX322, YX326, and YX329

The internal standard areas for the samples listed above fell below the QC advisory criterion, as shown below.

<u>Sample</u>	<u>Internal Standard</u>	<u>Area</u>	<u>QC Limits</u>
YX322	Phenanthrene-d ₁₀	47900	49372-197486
	Chrysene-d ₁₂	16882	18020-72082
	Perylene-d ₁₂	9880	13708-54830
YX329	Perylene-d ₁₂	13527	13708-54830
YX326	Phenanthrene-d ₁₀	35633	41344-165374
	Chrysene-d ₁₂	10019	12550-50198
	Perylene-d ₁₂	6252	7692-30768

The detected results and quantitation limits for the analytes listed above are considered quantitatively questionable. Where the results are nondetected, false negatives may exist.

Samples YX322, YX326, and YX329 were reanalyzed due to the low internal standard areas in accordance with SOW requirements. The results from the reanalysis of sample YX322 are presented in Table

1A in order to minimize the number of qualified data points. The results from the original analysis of sample YX326 and the reanalysis of sample YX329 are presented in Table 1A because higher area counts were obtained in those analyses.

Internal standards, introduced into every calibration standard, blank, sample, and QC sample, monitor changes in analyte response due to matrix effects and fluctuations in instrument sensitivity throughout the analytical sequence. Internal standards are used to quantitate the concentration of target analytes and surrogate standards.

- F. The matrix spike and matrix spike duplicate results for 4-nitrophenol and pentachlorophenol in semivolatile QC samples YX323MS and YX323MSD did not meet the criteria for accuracy specified in the SOW. The percent recoveries are presented below.

<u>Analyte</u>	<u>YX323MS</u> <u>%Recovery</u>	<u>YX323MSD</u> <u>%Recovery</u>	<u>QC limits</u> <u>%Recovery</u>
4-Nitrophenol	83	101	10-80
Pentachlorophenol	112	112	9-103

The results obtained may indicate poor laboratory technique, or matrix effects which may interfere with accurate analysis. Since these recoveries are above the QC limits and the sample results for these analytes are nondetected, no adverse effect on the quality of the data is expected.

Matrix spike sample analysis provides information about the effect of the sample matrix on sample preparation and measurement.

- G. Although not detected in any associated blanks, acetone and phthalates have been commonly found as contaminants in the field and in many laboratories. The user should note that the analytes listed below may be artifacts.
- Acetone in volatile samples YX322, YX323, and YX329
 - Diethylphthalate in semivolatile samples YX322 and YX324
 - Di-n-butylphthalate in semivolatile samples YX322, YX324 through YX326, YX328, and YX363
 - bis(2-Ethylhexyl)phthalate in semivolatile samples YX324 through YX326, YX328, YX329, and YX363

TB-Trip Blank, BG-Background Sample

TABLE 1A

Case No.: 25218 Memo #01

Site: Victoria Golf Course

Analysis Type: Low Level Groundwater

Lab.: American Technical & Analytical Services (ATAS)

Samples for Volatiles

Reviewer: Dina David-Bailey, ESAT/Lockheed

Date: February 10, 1997

Concentration in µg/L

Station Location	GW-9			GW-10-1			GW-11			GW-12-1			GW-13-1		
Sample I.D.	YX328			YX329			YX330 EB			YX331 FB			YX332 EB		
Date of Collection	12/10/96			12/11/96			12/9/96			12/10/96			12/10/96		
Volatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Chloromethane	10 U			10 U			10 U			10 U			10 U		
Bromomethane	10 U			10 U			10 U			10 U			10 U		
Vinyl chloride	4 L J		A	23			10 U			10 U			10 U		
Chloroethane	10 U			10 U			10 U			10 U			10 U		
Methylene chloride	10 U J		B	10 U J		B	10 U			14		B	5 L J		AB
Acetone	10 U			3 L J		AG	10 U			10 U			10 U		
Carbon disulfide	10 U			10 U			10 U			10 U			10 U		
1,1-Dichloroethene	10 U			10 U			10 U			10 U			10 U		
1,1-Dichloroethane	10 U			10 U			10 U			10 U			10 U		
1,2-Dichloroethene (total)	5 L J		A	72			10 U			10 U			10 U		
Chloroform	10 U			10 U			10 U			10 U			10 U		
1,2-Dichloroethane	10 U			4 L J		A	10 U			10 U			10 U		
2-Butanone	10 U			10 U			10 U			10 U			10 U		
1,1,1-Trichloroethane	10 U			10 U			10 U			10 U			10 U		
Carbon tetrachloride	10 U			10 U			10 U			10 U			10 U		
Bromodichloromethane	10 U			10 U			10 U			10 U			10 U		
1,2-Dichloropropane	10 U			10 U			10 U			10 U			10 U		
cis-1,3-Dichloropropene	10 U			10 U			10 U			10 U			10 U		
Trichloroethene	16			27			10 U			10 U			10 U		
Dibromochloromethane	10 U			10 U			10 U			10 U			10 U		
1,1,2-Trichloroethane	10 U			10 U			10 U			10 U			10 U		
Benzene	10 U			10 U			10 U			10 U			10 U		
trans-1,3-Dichloropropene	10 U			10 U J		D	10 U			10 U J		D	10 U J		D
Bromoform	10 U			10 U			10 U			10 U			10 U		
4-Methyl-2-pentanone	10 U			10 U			10 U			10 U			10 U		
2-Hexanone	10 U			10 U			10 U			10 U			10 U		
Tetrachloroethene	10 U			4 L J		A	10 U			10 U			10 U		
1,1,2,2-Tetrachloroethane	10 U			10 U			10 U			10 U			10 U		
Toluene	10 U			10 U			10 U			10 U			10 U		
Chlorobenzene	10 U			13			10 U			10 U			10 U		
Ethylbenzene	10 U			10 U			10 U			10 U			10 U		
Styrene	10 U			10 U			10 U			10 U			10 U		
Xylene (total)	10 U			10 U			10 U			10 U			10 U		

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank

TB-Trip Blank, BG-Background Sample

TABLE 1A

Case No.: 25218 Memo #01

Site: Victoria Golf Course

Analysis Type: Low Level Groundwater

Lab.: American Technical & Analytical Services (ATAS)

Samples for Volatiles

Reviewer: Dina David-Bailey, ESAT/Lockheed

Date: February 10, 1997

Concentration in µg/L

[illegible]

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank

TB-Trip Blank, BG-Background Sample

TABLE 1A

Site: Victoria Golf Course

Analysis Type: Low Level Groundwater

Lab.: American Technical & Analytical Services (ATAS)

Samples for Volatiles

Reviewer: Dina David-Bailey, ESAT/Lockheed

Date: February 10, 1997

Concentration in µg/L

[illegible]

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank

TB-Trip Blank, BG-Background Sample

Case No.: 25218 Memo #01

TABLE 1A

Site: Victoria Golf Course

Lab.: American Technical & Analytical Services (ATAS)

Analysis Type: Low Level Groundwater Samples
for Semivolatiles

Reviewer: Dina David-Bailey, ESAT/Lockheed

Date: February 10, 1997

Concentration in µg/L

[illegible]

Station Location	GW-1-1			GW-2			GW-3-1			GW-4-1			GW-5-1			GW-9			GW-10-1		
Sample I.D.	YX322			YX323			YX324 BG			YX325 BG			YX326 D1			YX328			YX329		
Date of Collection	12/13/96			12/9/96			12/11/96			12/12/96			12/11/96			12/10/96			12/11/96		
Semivolatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Acenaphthene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
2,4-Dinitrophenol	25 U			25 U	J	C	25 U			25 U			25 U			25 U	J	C	25 U		
4-Nitrophenol	25 U			25 U		F	25 U			25 U			25 U			25 U			25 U		
Dibenzofuran	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
2,4-Dinitrotoluene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Diethylphthalate	3 L	J	AG	10 U			0.6 L	J	AG	10 U			10 U			10 U			10 U		
4-Chlorophenyl phenyl ether	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Fluorene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Nitroaniline	25 U			25 U	J	C	25 U			25 U			25 U			25 U	J	C	25 U		
4,6-Dinitro-2-methylphenol	25 U	J	E	25 U			25 U			25 U	J	E	25 U	J	E	25 U			25 U		
N-Nitrosodiphenylamine	10 U	J	E	10 U			10 U			10 U	J	E	10 U	J	E	10 U			10 U		
4-Bromophenyl phenyl ether	10 U	J	E	10 U			10 U			10 U	J	E	10 U	J	E	10 U			10 U		
Hexachlorobenzene	10 U	J	E	10 U			10 U			10 U	J	E	10 U	J	E	10 U			10 U		
Pentachlorophenol	25 U	J	E	25 U		F	25 U			25 U	J	E	25 U	J	E	25 U			25 U		
Phenanthrene	10 U	J	E	10 U			10 U			10 U	J	E	10 U	J	E	10 U			10 U		
Anthracene	10 U	J	E	10 U			10 U			10 U	J	E	10 U	J	E	10 U			10 U		
Carbazole	10 U	J	E	10 U			10 U			10 U	J	E	10 U	J	E	10 U			10 U		
Di-n-butylphthalate	7 L	J	AEG	10 U	J	B	57		G	21		G	2 L	J	AEG	1 L	J	AG	10 U		
Fluoranthene	10 U	J	E	10 U			10 U			10 U	J	E	10 U	J	E	10 U			10 U		
Pyrene	10 U	J	DE	10 U			10 U			10 U	J	D	10 U	J	E	10 U			10 U	J	D
Butylbenzylphthalate	10 U	J	E	10 U			10 U			10 U	J	E	10 U	J	E	10 U			10 U		
3,3'-Dichlorobenzidine	10 U	J	E	10 U			10 U			10 U	J	E	10 U	J	E	10 U			10 U		
Benzo(a)anthracene	10 U	J	E	10 U			10 U			10 U	J	E	10 U	J	E	10 U			10 U		
Chrysene	10 U	J	E	10 U			10 U			10 U	J	E	10 U	J	E	10 U			10 U		
2-(2-Ethylhexyl)phthalate	10 U	J	E	10 U			2 L	J	AG	1 L	J	AG	4 L	J	AEG	16		G	6 L	J	AG
Di-n-octylphthalate	10 U	J	DE	10 U			10 U			10 U	J	D	10 U	J	E	10 U			10 U	J	DE
Benzo(b)fluoranthene	10 U	J	E	10 U			10 U			10 U	J	E	10 U	J	E	10 U			10 U	J	E
Benzo(k)fluoranthene	10 U	J	E	10 U			10 U			10 U	J	E	10 U	J	E	10 U			10 U	J	E
Benzo(a)pyrene	10 U	J	E	10 U			10 U			10 U	J	E	10 U	J	E	10 U			10 U	J	E
Indeno(1,2,3-cd)pyrene	10 U	J	E	10 U			10 U			10 U	J	E	10 U	J	E	10 U			10 U	J	E
Dibenz(a,h)anthracene	10 U	J	E	10 U			10 U			10 U	J	E	10 U	J	E	10 U			10 U	J	E
Benzo(g,h,i)perylene	10 U	J	E	10 U			10 U			10 U	J	E	10 U	J	E	10 U			10 U	J	E

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

BG-Background Sample

TABLE 1A

Analysis Type: Low Level Groundwater Samples
for Semivolatiles

Reviewer: Dina David-Bailey, ESAT/Lockheed

Concentration in µg/L

Station Location	GW-11			GW-12-1			GW-13-1			GW-14-1			GW-28-1			Method Blank			Method Blank		
Sample I.D.	YX330 EB			YX331 FB			YX332 EB			YX333 EB			YX363 D1			SBLKEA			SBLKEU		
Date of Collection	12/9/96			12/10/96			12/10/96			12/11/96			12/11/96								
Semivolatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Phenol	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
bis(2-Chloroethyl)ether	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
2-Chlorophenol	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
1,3-Dichlorobenzene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
1,4-Dichlorobenzene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
1,2-Dichlorobenzene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
2-Methylphenol	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
2,2'-oxybis(1-Chloropropane)	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
4-Methylphenol	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
N-Nitroso-di-n-propylamine	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Hexachloroethane	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Nitrobenzene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Isophorone	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
2-Nitrophenol	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
2,4-Dimethylphenol	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
bis(2-Chloroethoxy)methane	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
2,4-Dichlorophenol	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
1,2,4-Trichlorobenzene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Naphthalene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
2-Chloroaniline	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Hexachlorobutadiene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
4-Chloro-3-methylphenol	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
2-Methylnaphthalene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Hexachlorocyclopentadiene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
2,4,6-Trichlorophenol	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
2,4,5-Trichlorophenol	25 U			25 U			25 U			25 U			25 U			25 U			25 U		
2-Chloronaphthalene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
2-Nitroaniline	25 U			25 U			25 U			25 U			25 U			25 U			25 U		
Dimethylphthalate	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Acenaphthylene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
2,6-Dinitrotoluene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
3-Nitroaniline	25 U			25 U			25 U			25 U			25 U			25 U			25 U		

Station Location Sample I.D. Date of Collection	GW-11 YX330 EB 12/9/96			GW-12-1 YX331 FB 12/10/96			GW-13-1 YX332 EB 12/10/96			GW-14-1 YX333 EB 12/11/96			GW-28-1 YX363 D1 12/11/96			Method Blank SBLKEA			Method Blank SBLKEU		
Semivolatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Acenaphthene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
2,4-Dinitrophenol	25 U	J	C	25 U			25 U			25 U			25 U			25 U			25 U		
4-Nitrophenol	25 U			25 U			25 U			25 U			25 U			25 U			25 U		
Dibenzofuran	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
2,4-Dinitrotoluene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Diethylphthalate	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
4-Chlorophenyl phenyl ether	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
fluorene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
4-Nitroaniline	25 U	J	C	25 U			25 U			25 U			25 U			25 U			25 U		
4,6-Dinitro-2-methylphenol	25 U			25 U			25 U			25 U			25 U			25 U			25 U		
N-Nitrosodiphenylamine	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
4-Bromophenyl phenyl ether	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Hexachlorobenzene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Pentachlorophenol	25 U			25 U			25 U			25 U			25 U			25 U			25 U		
Phenanthrene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Anthracene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Carbazole	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Di-n-butylphthalate	0.5 L	J	AB	10 U			10 U			10 U			2 L	J	AG	10 U			10 U		
Fluoranthene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Pyrene	10 U			10 U			10 U			10 U	J	D	10 U	J	D	10 U			10 U		
Butylbenzylphthalate	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
3,3'-Dichlorobenzidine	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Benzo(a)anthracene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Chrysene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Bis(2-Ethylhexyl)phthalate	1 L	J	AB	10 U			10 U			10 U			3 L	J	AG	10 U			10 U		
Di-n-octylphthalate	10 U			10 U			10 U			10 U	J	D	10 U	J	D	10 U			0.5 L	J	AB
Benzo(b)fluoranthene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Benzo(k)fluoranthene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Benzo(a)pyrene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Indeno(1,2,3-cd)pyrene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Dibenz(a,h)anthracene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		
Benzo(g,h,i)perylene	10 U			10 U			10 U			10 U			10 U			10 U			10 U		

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

BG-Background Sample

TABLE 1A

Analysis Type: Low Level Groundwater Samples
for Semivolatiles

Concentration in µg/L

Date: February 10, 1997

[illegible]

Sample I.D.	CRQL																	
Semivolatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Acenaphthene	10																	
2,4-Dinitrophenol	25																	
4-Nitrophenol	25																	
Dibenzofuran	10																	
2,4-Dinitrotoluene	10																	
Diethylphthalate	10																	
4-Chlorophenyl phenyl ether	10																	
Fluorene	10																	
4-Nitroaniline	25																	
4,6-Dinitro-2-methylphenol	25																	
N-Nitrosodiphenylamine	10																	
4-Bromophenyl phenyl ether	10																	
Hexachlorobenzene	10																	
Pentachlorophenol	25																	
Phenanthrene	10																	
Anthracene	10																	
Carbazole	10																	
Di-n-butylphthalate	10																	
Fluoranthene	10																	
Pyrene	10																	
Butylbenzylphthalate	10																	
3,3'-Dichlorobenzidine	10																	
Benzo(a)anthracene	10																	
Chrysene	10																	
Diethylhexylphthalate	10																	
Di-n-octylphthalate	10																	
Benzo(b)fluoranthene	10																	
Benzo(k)fluoranthene	10																	
Benzo(a)pyrene	10																	
Indeno(1,2,3-cd)pyrene	10																	
Dibenz(a,h)anthracene	10																	
Benzo(g,h,i)perylene	10																	

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

BG-Background Sample

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," February 1994.

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
- NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

TABLE 2
Volatiles and Semivolatiles: Continuing Calibrations

Case No.: 25218 Memo #01
Site: Victoria Golf Course
Laboratory: American Technical & Analytical Services (ATAS)
Reviewer: Dina David-Bailey, ESAT/Lockheed
Date: February 10, 1997

PERCENT DIFFERENCES

VOLATILES

	%D
Analysis date/time:	12-17-96/1035
GC/MS I.D.:	D
<u>Analyte</u>	<u>Cont.</u>
trans-1,3-Dichloropropene	-36.8

ASSOCIATED SAMPLES AND BLANKS

Cont. 12-17-96/1035: YX322, YX324 through YX326, YX329, YX331 through YX333, YX363, VBLKDP, and VHBLKDP

SEMIVOLATILES

	%D
Analysis date/time:	12-31-96/1411
GC/MS I.D.:	E
<u>Analyte</u>	<u>Cont.</u>
Pyrene	-25.3
Di-n-octylphthalate	-28.4

ASSOCIATED SAMPLES

Cont. 12-31-96/1411: YX322, YX325, YX329, YX333, and YX363

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX322

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17713.01

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: D7876.D

Level: (low/med) LOW

Date Received: 12/14/96

% Moisture: not dec. _____

Date Analyzed: 12/17/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: ¹²
13

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 78-78-4	Butane, 2-methyl-	5.576	54	NJ
2. 110-54-3	Hexane	8.852	6	NJ
3. 96-37-7	Cyclopentane, methyl-	9.756	7	NJ
4. 565-59-3	Pentane, 2,3 dimethyl-	10.710	17	NJ
5. 1638-26-2	Cyclopentane, 1,1-dimethyl-	10.945	17	NJ
6. 4516-69-2	Cyclopentane, 1,1,3-trimethyl-	12.217	8	NJ
7. 2613-69-6	Cyclopentane, 1,2,3 trimethyl-	12.805	6	NJ
8. 34462-28-7	Cyclopropane, trimethylmethy-	13.005	10	NJ
9. 110-01-0	Thiophene, tetrahydro-	14.952	12	NJ
10. 4740-00-5	Thiophene, tetrahydro-3-methyl-	16.383	22	NJ
11.	Unknown	17.119	6	J
12. 1074-17-5	Benzene, 1-methyl-2-propyl-	18.521	10	NJ
13. 95-50-1	Benzene, 1,2-dichloro-	18.768	5	NJ
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

2. Common laboratory contaminant

3, 4, 7, 8. Unknown hydrocarbon

12. and 13. Substituted benzene

FORM I VOA-TIC

HOB 11/28/97

OLM03.0

000037

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX324

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17703.02

Sample wt/vol: 5.0

(g/mL) ML

Lab File ID: D7875.D

Level: (low/med) LOW

Date Received: 12/13/96

% Moisture: not dec. _____

Date Analyzed: 12/17/96

GC Column: DB-624

ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: ²₃

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 96-14-0	Pentane, 3-methyl-	8.432	38	NJ
2. 110-54-3	Hexane	8.861	1600	NJ
3. 96-37-7	Cyclopentane, methyl-	9.755	67	NJ
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

2. Common laboratory contaminant
3. Unknown hydrocarbon

FORM I VOA-TIC

HAB 1/28/97 OLM03.0

000075

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX328

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17669.09

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: D7829.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture: not dec. _____

Date Analyzed: 12/12/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1. 78-78-4	Butane, 2-methyl-	5.566	12	NJ
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

FORM I VOA-TIC

OLM03.0

#88 1/28/97

000100

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX330

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17669.08

Sample wt/vol: 5.0 (g/mL) ML

Lab File ID: D7828.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture: not dec. _____

Date Analyzed: 12/12/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: ¹/₂

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1. 1825-61-2	Silane, methoxytrimethyl	8.233	8	NJ
2.	Unknown	9.970	28	J
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1. Column bleed

FORM I VOA-TIC

HOB 1/28/97

OLM03.0

000125

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX322RE

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17713.01

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: EE8154.D

Level: (low/med) LOW

Date Received: 12/14/96

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 12/16/96

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 12/31/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 6.9

Number TICs found: ¹⁹~~28~~

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.452	36	J
2. 76-09-5	2,3-Butanediol, 2,3-dimethyl	4.621	31	J
3. 4740-00-5	Thiophene, tetrahydro-3-meth	4.845	13	NJ
4.	UNKNOWN	4.998	5	J
5. 590-67-0	Cyclohexanol, 1-methyl-	5.069	12	NJ
6.	UNKNOWN	5.096	16	J
7.	UNKNOWN	5.555	6	J
8.	UNKNOWN	6.282	6	J
9.	UNKNOWN	6.495	8	J
10.	UNKNOWN	6.539	13	J
11.	UNKNOWN	6.780	6	J
12.	UNKNOWN	6.960	8	J
13. 617-94-7	Benzenemethanol, .alpha., .al	7.043	9	NJ
14.	UNKNOWN	7.382	11	J
15.	UNKNOWN	7.749	9	J
16.	UNKNOWN	7.903	6	J
17.	UNKNOWN	8.067	5	J
18.	UNKNOWN	8.177	8	J
19.	UNKNOWN	8.446	9	J
20.	UNKNOWN	9.072	8	J
21.	UNKNOWN	9.215	5	J
22.	UNKNOWN	9.462	12	J
23.	UNKNOWN	10.227	19	J
24. 88-19-7	Benzenesulfonamide, 2-methyl	11.648	12	NJ
25. 934-34-9	2(3H)-Benzothiazolone	11.974	38	NJ
26. 84-69-5	1,2-Benzenedicarboxylic acid	13.067	24	NJ
27.				
28.				
29.				
30.				

1. → 6. eluted >30 seconds before phenol
13. Unknown aromatic
26. phthalate

000297

FORM I SV-TIC

OLM03.0

H288
1/29/97

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX323

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17669.01

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: EE8260.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 12/12/96

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 01/17/97

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 7.2

Number TICs found: ¹³
~~14~~

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	4.315	2	NJ
2. 65-85-0	Benzoic Acid	7.523	7	NJ
3. 95-16-9	Benzothiazole	8.383	3	NJ
4. 123-92-2	1-Butanol, 3-methyl-, acetate	9.678	15	NJ
5.	UNKNOWN	10.238	42	J
6.	UNKNOWN	10.402	4	J
7.	UNKNOWN	13.348	2	J
8.	UNKNOWN	13.517	2	J
9.	UNKNOWN	15.177	3	J
10.	UNKNOWN	16.151	3	J
11. 0-00-0	Tridecanol, 2-ethyl-2-methyl-	17.050	3	NJ
12.	UNKNOWN	17.580	4	J
13.	UNKNOWN	19.982	3	J
14.	UNKNOWN	20.856	5	J
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1. eluted >30 seconds before phenol

000335

FORM I SV-TIC

HAB 1/29/97
OLM03.0

Data file : EE8260.d

Matrix : WATER

CAS #	Compound	R.T.	Estimated Conc.
112-95-8	Eicosane	16.60	4
* 646-31-1	Tetracosane	17.50	5
	UNKNOWN ALKANE	18.00	3
	UNKNOWN ALKANE	18.57	6
* 75163-99-4	Nonadecane, 2,3-dimethyl	19.22	4

Concentration Units: Water: UG/L Soil: UG/KG

* Unknown alkane

for 1/19/97

1-18-97
K

MSB 1/29/97

JP 1-19-97
000006

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX324

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17703.02

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: EE8139.D

Level: (low/med) LOW

Date Received: 12/13/96

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 12/16/96

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 12/30/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 7.5

Number TICs found: ¹⁴
18

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-met	4.455	2	NJB
2. 112-34-5	Ethanol, 2-(2-butoxyethoxy) -	7.951	10	J
3.	Unknown	8.462	2	J
4.	UNKNOWN	8.560	2	J
5.	UNKNOWN	8.680	3	J
6.	UNKNOWN	10.819	13	J
7.	UNKNOWN	11.501	3	J
8. 19097-77-9	Phosphoric acid, methylsilyl	12.249	12	NJ
9.	UNKNOWN	12.718	3	J
10. 57-10-3	Hexadecanoic acid	13.493	5	NJB
11.	UNKNOWN	14.318	2	J
12.	UNKNOWN	14.455	12	J
13.	UNKNOWN	14.635	2	J
14.	UNKNOWN	14.767	2	J
15.	UNKNOWN	14.833	12	JB
16. 80-05-7	Phenol, 4,4'-(1-methylethyl)	15.041	11	NJ
17.	UNKNOWN	15.774	16	JB
18.	UNKNOWN	21.220	12	J
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1. eluted >30 sec. before phenol
 8. Phosphoric acid, methylsilylene P,P'-bis(2-ethylhexyl) ester
 10., 15., and 17. found in the associated method blank
 16. Unknown

000364

FORM I SV-TIC

HAB 1/29/97

OLM03.0

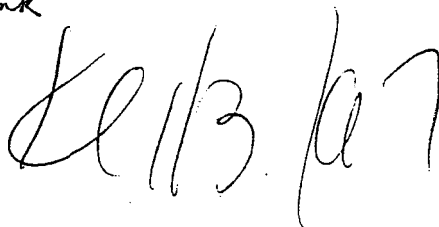
Data file : EE8139.d

Matrix : WATER

CAS #	Compound	R.T.	Estimated Conc.
* 593-45-3	Octadecane	17.20	5
* 629-92-5	Nonadecane	18.20	12
112-95-8	Eicosane	18.80	12
55282-15-0	Docosane, 7-butyl-	19.49	13
1560-96-9	Tridecane, 2-methyl-	20.29	16
1560-84-5	Eicosane, 2-methyl-	22.29	16
	UNKNOWN ALKANE	23.60	15

Concentration Units: Water: UG/L Soil: UG/KG

* found in the associated method blank



HAB 1/29/97

JP

1-19-97

000007

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX325

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17703.12

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: EE8152.D

Level: (low/med) LOW

Date Received: 12/13/96

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 12/16/96

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 12/31/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 8.0

Number TICs found: ¹¹
~~14~~

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-met	4.438	3	JB
2.	UNKNOWN	10.794	8	J
3.	UNKNOWN	11.480	3	J
4. 19097-77-9	Phosphoric acid, methylsilyl	12.226	6	NJ
5. 142-50-7	1,6,10-Dodecatrien-3-ol, 3,7	13.986	5	NJ
6.	UNKNOWN	14.434	22	J
7.	UNKNOWN	14.734	2	J
8.	UNKNOWN	14.784	7	JB
9.	UNKNOWN	14.811	11	JB
10.	UNKNOWN Unknown	15.123	8	J
11.	UNKNOWN	15.654	4	J
12.	UNKNOWN	15.753	11	JB
13. 1740-19-8	1-Phenanthrenecarboxylic aci	15.928	6	NJ
14.	UNKNOWN	16.196	11	J
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1. eluted >30 seconds before phenol
4. Phosphoric acid, methylsilylene P,P'-bis(2-ethylhexyl) ester
5. Dodecatriene
9. and 12. found in the associated method blank
13. Carboxylic acid

FORM I SV-TIC

000402

1/29/97

OLM03.0

Data file : EE8152.d

Matrix : WATER

RP
1/6/97

CAS #	Compound	R.T.	Estimated Conc.
	UNKNOWN ALKANE	16.27	4
0-00-0	2-Methyloctadecane	16.74	5
* 629-99-2	Pentacosane	17.18	5
112-95-8	Eicosane	17.65	5
* 1560-86-7	Nonadecane, 2-methyl-	18.18	8
593-45-3	Octadecane	18.77	8
1560-89-0	Heptadecane, 2-methyl-	19.45	8
7098-22-8	Tetratetracontane	20.25	8
	UNKNOWN ALKANE	21.17	9
	UNKNOWN ALKANE	22.26	7

Concentration Units: Water: UG/L Soil: UG/KG

* found in the associated method blank

1-7-97

JP
1/29/97
000008

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX326

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17703.05

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: EE8142.D

Level: (low/med) LOW

Date Received: 12/13/96

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 12/16/96

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 12/30/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 7.6

Number TICs found: ³/₈

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-met	4.458	3	NJB
2. 112-60-7	Ethanol, 2,2'-[oxybis(2,1-et	7.979	3	NJ
3.	UNKNOWN	11.762	5	J
4. 57-10-3	Hexadecanoic acid	13.502	3	JB
5.	UNKNOWN	13.688	5	JB
6.	UNKNOWN	14.836	8	JB
7.	UNKNOWN	15.049	4	J
8.	UNKNOWN	15.780	14	JB
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1. eluted >30 seconds before phenol
2. Unknown
- 4-76. and 8. found in the associated method blank

11/29/97 000437

Data file : EE8142.d

Matrix : WATER

CAS #	Compound	R.T.	Estimated Conc.
593-45-3	Octadecane	17.68	5
* UNKNOWN ALKANE		18.21	8
112-95-8	Eicosane	18.80	7
1120-21-4	Undecane <i>Unknown alkane</i>	19.49	7
	UNKNOWN ALKANE	22.31	10

Concentration Units: Water: UG/L Soil: UG/KG

* found in the associated method blank

12/13/97

✓

1003 1/29/97

JP 1-19-97
000009

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX328

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17669.09

Sample wt/vol: 1000

(g/mL) ML

Lab File ID: EE8265.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 12/12/96

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 01/17/97

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 7.4

Number TICs found: ⁵/₇

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
=====	=====	=====	=====	=====
1. 123-42-2	2-Pentanone, 4-hydroxy-4-met	4.304	3	NJ
2.	UNKNOWN	5.153	3	J
3.	UNKNOWN	5.294	2	J
4.	UNKNOWN	5.903	5	J
5.	UNKNOWN	13.519	3	J
6.	UNKNOWN	15.424	3	J
7. 4602-84-0	2,6,10-Dodecatrien-1-ol, 3,7	17.774	5	NJ
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1. and 2. eluted 730 seconds before phenol
7. Unknown

FORM I SV-TIC

000484
1/29/97

OLM03.0

Data file : EE8265.d

Matrix : WATER

CAS #	Compound	R.T.	Estimated Conc.
	UNKNOWN ALKANE	16.14	3
544-85-4	Dotriacontane	17.04	5
112-95-8	Eicosane	17.50	4
	UNKNOWN ALKANE	18.00	4

Concentration Units: Water: UG/L

Soil: UG/KG

Handwritten signature

Handwritten initials and date: 1/29/97

Handwritten date: 1/29/97

Handwritten initials: JP
Handwritten date: 1-19-97
Handwritten number: 000011

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX329RE

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17703.01

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: EE8156.D

Level: (low/med) LOW

Date Received: 12/13/96

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 12/16/96

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 12/31/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 6.7

Number TICs found: ⁷~~16~~

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	4.440	3	JB
2. 617-94-7	Benzenemethanol, .alpha., .alpha.	7.045	2	J
3.	UNKNOWN	13.480	2	J
4.	UNKNOWN	13.660	3	JB
5.	UNKNOWN	14.441	15	J
6.	UNKNOWN	14.813	10	JB
7.	UNKNOWN	14.907	4	J
8.	UNKNOWN	15.016	7	J
9.	UNKNOWN	15.656	4	J
10.	UNKNOWN	15.755	12	JB
11. 1740-19-8	1-Phenanthrenecarboxylic acid	15.924	4	NJ
12.	UNKNOWN	16.192	5	J
13. 7225-64-1	Heptadecane, 9-octyl-	16.739	4	NJ
14. 544-76-3	Hexadecane	17.188	4	NJ
15. 112-95-8	Eicosane	17.658	4	NJ
16. 629-92-5	Nonadecane	18.183	8	NJ
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1. eluted >30 seconds before phenol
 2. Benzenemethanol, .alpha., .alpha.-dimethyl-
 3, 4, 6, and 10. found in the associated method blank
 11. 1-Phenanthrene carboxylic acid, 1,2,3,4,4a,9,10,10a-octahydro-1,4a-dimethyl-7-
 13. → 16. See alkane report

1/29/97
 000532

FORM I SV-TIC

OLM03.0

Data file : EE8156.d

Matrix : WATER

RB, -1997

Estimated
Conc.

CAS #	Compound	R.T.	Estimated Conc.
7225-64-1	Heptadecane, 9-octyl-	16.73	4
* 544-76-3	Hexadecane	17.18	4
112-95-8	Eicosane	17.65	4
* 629-92-5	Nonadecane	18.18	8

Concentration Units: Water: UG/L Soil: UG/KG

* found in the associated method blank

1-8-97
RC

HOB 1/29/97

JP
1-19-97
000013

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX330

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17669.08

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: EE8263.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 12/12/96

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 01/17/97

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 9.6

Number TICs found: ³/₄

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-met	4.309	2	NJ
2. 57-10-3	Hexadecanoic acid	13.344	4	NJ
3.	UNKNOWN	13.519	3	J
4.	UNKNOWN	17.773	13	J
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1. eluted >30 sec. before phenol

000556

11/29/97

Data file : EE8140.d

Matrix : WATER

CAS #	Compound	R.T.	Estimated Conc.
638-36-8	Hexadecane, 2,6,10,14-tetramethyl-	16.75	3
* 629-59-4	Tetradecane	17.20	2
638-67-5	Tricosane	17.67	3

Concentration Units: Water: UG/L Soil: UG/KG

* found in the associated method blank

2-4-97
RB

HAB 2/7/97

000013A
RB 2-5-97

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX332

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17703.04

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: EE8141.D

Level: (low/med) LOW

Date Received: 12/13/96

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 12/16/96

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 12/30/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 8.7

Number TICs found: 5

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-met	4.454	2	NJB
2.	UNKNOWN	13.685	2	JB
3.	UNKNOWN	14.458	6	J
4.	UNKNOWN	14.834	9	JB
5.	UNKNOWN	15.042	3	J
6.	UNKNOWN	15.527	4	J
7.	UNKNOWN	15.680	5	J
8.	UNKNOWN	15.773	16	JB
9.	UNKNOWN	15.953	4	J
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1. eluted 730 seconds before phenol
2, 4, and 8. found in the associated method blank

000584

#000 1/29/97

Data file : EE8141.d

Matrix : WATER

CAS #	Compound	R.T.	Estimated Conc.
	UNKNOWN ALKANE	16.76	3
*	UNKNOWN ALKANE	17.20	3
	UNKNOWN ALKANE	17.68	4

Concentration Units: Water: UG/L Soil: UG/KG

* found in the associated method blank

2-4-97
KCB

WAB 2/7/97

000014

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX333

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17703.07

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: EE8149.D

Level: (low/med) LOW

Date Received: 12/13/96

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 12/16/96

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 12/31/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 8.2

Number TICs found: 1

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-met	4.437	3	JB
2.	UNKNOWN	13.665	3	JB
3.	UNKNOWN	14.814	6	JB
4.	UNKNOWN	15.659	2	J
5.	UNKNOWN	15.757	9	JB
6.	UNKNOWN	17.943	5	JB
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1. eluted >30 seconds before phenol
2, 3, 5, and 6. found in the associated method blank

1/29/97

000603

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX363

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX323

Matrix: (soil/water) WATER

Lab Sample ID: 17703.06

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: EE8158.D

Level: (low/med) LOW

Date Received: 12/13/96

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 12/16/96

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 12/31/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N

pH: 7.0

Number TICs found: ⁵
~~11~~

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-met	4.433	3	NJB
2.	UNKNOWN	6.042	4	J
3. 95-16-9	Benzothiazole	8.516	2	NJ
4. 544-63-8	Tetradecanoic acid	13.476	7	NJ
5.	UNKNOWN	13.661	4	JB
6. 57-11-4	Octadecanoic acid	14.611	3	NJ
7.	UNKNOWN	14.813	5	JB
8.	UNKNOWN	15.753	7	JB
9. 603-11-2	1,2-Benzenedicarboxylic acid	16.649	11	NJ
10. 4128-17-0	2,6,10-Dodecatrien-1-ol, 3,7	17.936	10	NJ
11.	UNKNOWN	18.029	4	JB
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1. eluted 730 seconds before phenol.
4, 9, 7, and 8. found in the associated method blank
9. phthalate
10. Unknown

000616

FORM I SV-TIC

HAB 11/27/97 OLM03.0

Data file : EE8158.d

Matrix : WATER

CAS #	Compound	<i>APM</i> 1/6/97	R.T.	Estimated Conc.
	UNKNOWN ALKANE			
629-92-5	Nonadecane		15.31	4
* 112-95-8	Eicosane		16.74	7
13287-23-5	Heptadecane, 8-methyl-		17.18	8
* 638-67-5	Tricosane		17.65	10
630-03-5	Nonacosane		18.18	25
629-99-2	Pentacosane		18.77	25
630-06-8	Hexatriacontane		19.45	28
13287-24-6	Nonadecane, 9-methyl-		20.24	28
55333-99-8	Eicosane, 7-hexyl-		21.16	32
646-31-1	Tetracosane		22.25	25
3386-33-2	Octadecane, 1-chloro-		23.52	24
			25.03	25

Concentration Units: Water: UG/L

Soil: UG/KG

* found in the associated method blank

1.8-93
RC

1/29/97

1-19-97 JP

000013 B

TPO: [] FYI [X] Attention [] Action

Region 9

ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 25218 Memo #01 LABORATORY ATAS
 SDG NO. YX323 SITE NAME Victoria Golf Course
 SOW OLM03.2 REVIEW COMPLETION DATE February 10, 1997
 REVIEWER [] ESD [X] ESAT REVIEWER'S NAME Dina David-Bailey
 NO. OF SAMPLES 12 WATER _____ SOIL _____ OTHER _____

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES/PRESERVATION	<u>O</u>	<u>O</u>	_____	_____
2. GC-MS TUNE	<u>O</u>	<u>O</u>	_____	_____
3. INITIAL CALIBRATIONS	<u>O</u>	<u>X</u>	_____	_____
4. CONTINUING CALIBRATIONS	<u>X</u>	<u>X</u>	_____	_____
5. FIELD QC	<u>X</u>	<u>X</u>	_____	_____
6. LABORATORY BLANKS	<u>X</u>	<u>O</u>	_____	_____
7. SURROGATES	<u>O</u>	<u>O</u>	_____	_____
8. MATRIX SPIKE/DUPLICATES	<u>O</u>	<u>O</u>	_____	_____
9. REGIONAL QC	<u>N/A</u>	<u>N/A</u>	_____	_____
10. INTERNAL STANDARDS	<u>O</u>	<u>X</u>	_____	_____
11. COMPOUND IDENTIFICATION	<u>O</u>	<u>O</u>	_____	_____
12. COMPOUND QUANTITATION	<u>O</u>	<u>O</u>	_____	_____
13. SYSTEM PERFORMANCE	<u>O</u>	<u>O</u>	_____	_____
14. OVERALL ASSESSMENT	<u>X</u>	<u>X</u>	_____	_____

O = Data have no problems or problems that do not affect data quality.
 X = Data are qualified due to minor problems.
 M = Data are qualified due to major problems.
 Z = Data are unacceptable.
 N/A = Not Applicable

TPO ACTION: None.

TPO ATTENTION: (1) Several volatile results are qualified as nondetected and estimated (U,J) due to contamination in the storage blank. (2) Several results are estimated (J) due to calibration problems. (3) Several semivolatile results are estimated (J) due to low internal standard areas.

AREAS OF CONCERN: None.

In Reference to Case No(s) .:

25218 Memo #01

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone Record Log

Date of Call: January 31, 1997
Laboratory Name: ATAS
Lab Contact: Ruseal Brewer
Region: 9
Regional Contact: Dina David-Bailey, ESAT/Lockheed
Call Initiated By: Laboratory X Region

In reference to data for the following sample(s):
YX322 through YX326, YX328 through YX333, and YX363 (SDG No. YX323)

Summary of Questions/Issues Discussed:

SEMIVOLATILES

1. The instrument performance check data for the 12/27/96 @ 1400 run were not included in the data package. Although not associated with this SDG, note that the instrument performance check data for the 12/27/96 @ 1029 were included in the data package. Please provide the missing data.
2. Sample mass spectrum for a tentatively identified alkane at a retention time (RT) of 19.49 minutes was not provided for sample YX326. The alkane report for sample YX326 (see page 000009) lists the alkane as undecane, CAS # 1120-21-4. Please clarify.
3. Sample mass spectrum for tetradecane at RT=17.20 minutes was provided (see page 580) for sample YX331. However, this alkane was not included in the alkane report for sample YX331. Please clarify.
4. Sample mass spectrum for alkanes were provided on pages 598-600 for sample YX332. However, no alkane report was submitted for sample YX332. Please clarify.

Summary of Resolution:

1. The laboratory provided the missing instrument performance check data.
2. The laboratory provided the missing sample mass spectrum.
- 3.-4. The laboratory provided the alkane reports as requested.

Dina David-Bailey
Signature

2-10-97
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy

Contract Laboratory Program
REGION 9/LABORATORY COMMUNICATION SYSTEM
CSF COMPLETENESS EVIDENCE AUDIT PROGRAM
Telephone Communication Summary Form

AUDIT NO.: 2/97/13 LAB CONTACT: Ruseal Brewer
CASE NO.: 25218 Memo #01 LAB CODE: ATAS
SDG NO.: YX323 LAB NAME: American Technical &
Analytical Services
FILENAME: 25218M01.TCS LAB LOCATION: Maryland Heights, MO

Summary of Questions/Issues Discussed:

- (1) The Form DC-1 (Sample Log-In Sheet) on page 861 should be corrected and resubmitted for the following items:
 - (a) Item 11 (Time Received) should also list 1400, in addition to 0845. Samples YX332 and YX326 were received 12/13/96 @ 1400 according to chain-of-custody form 366647; and
 - (b) The "Remarks" column should indicate a cooler temperature of 5°C starting from sample YX363 down to sample YX325.
- (2) Please correct and resubmit a corrected last page of the Form DC-2 for the following items:
 - (a) Incorrect year (1996 instead of 1997) was entered by the QA assistant; and
 - (b) No date was entered by the document control officer.

Summary of Resolution:

- (1) The laboratory resubmitted a corrected Form DC-1.
- (2) The laboratory resubmitted a corrected last page of the Form DC-2.

Heredia David-Barley
Auditor, ESAT/Lockheed

1-31-97
Date of Contact

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy

Lockheed Martin Environmental Services

Environmental Services Assistance Team, Region 9
301 Howard Street, Suite 970, San Francisco, CA 94105-2241
Phone: 415-278-0570 Fax: 415-278-0588

MEMORANDUM

TO: Rachel Loftin
Site Assessment Manager
States Planning & Assessment Office, SFD-5

THROUGH: Rose Fong *Rose*
ESAT Regional Project Officer
Quality Assurance (QA) Office, PMD-3

FROM: Jack Berges *JB*
Team Manager
Environmental Services Assistance Team (ESAT)

ESAT Contract No.: 68D60005
Work Assignment No.: 9-96-0-4
Technical Direction No.: 9604112

DATE: February 10, 1997

SUBJECT: Review of Analytical Data

Attached are comments resulting from ESAT Region 9 validation of the following analytical data:

SITE: Victoria Golf Course
SITE ACCOUNT NO.: ZZ
CERCLIS ID NO.: CAD980818926
CASE NO.: 25218 Memo #02
SDG NO.: YX341

LABORATORY: American Technical & Analytical Services (ATAS)
ANALYSIS: Volatiles and Semivolatiles

SAMPLES: 14 Soil Samples (see Case Summary)

COLLECTION DATE: December 9 and 10, 1996

REVIEWER: Adriane Scheele, ESAT/Lockheed

The comments and qualifications presented in this report have been reviewed and approved by the EPA Work Assignment Manager (WAM) for the ESAT Contract, whose signature appears above.

If there are any questions, please contact Deirdre O'Leary (ESAT/Lockheed) at (415) 278-0585 or Rose Fong (QA Office/EPA) at (415) 744-1534.

Attachment

cc: Larry Marchin, TPO USEPA Region 7

TPO: [] FYI [X] Attention [X] Action

SAMPLING ISSUES: [] Yes [X] No

Data Validation Report

Case No.: 25218 Memo #02
 Site: Victoria Golf Course
 Laboratory: American Technical & Analytical Services (ATAS)
 Reviewer: Adriane Scheele, ESAT/Lockheed
 Date: February 10, 1997

I. Case Summary

SAMPLE INFORMATION:

VOA and BNA Samples: YX339 through YX348, YX351, YX352, YX355, and YX356
 Concentration and Matrix: Low Level Soil
 Analysis: Volatiles and Semivolatiles
 SOW: OLM03.2
 Collection Date: December 9 and 10, 1996
 Sample Receipt Date: December 11 and 13, 1996
 Extraction Date: December 16, 1996
 VOA Analysis Date: December 13, 16, and 17, 1996
 BNA Analysis Date: December 27, 28, 30, and 31, 1996

FIELD QC:

Trip Blanks (TB): None
 Field Blanks (FB): YX331*
 Equipment Blanks (EB): YX330* and YX332* (*See Additional Comments)
 Background Samples (BG): YX343 through YX346
 Field Duplicates (D1): YX339 and YX356
 (D2): YX341 and YX355

METHOD BLANKS AND ASSOCIATED SAMPLES:

VBLKDN: YX342, YX342MS, YX342MSD, YX343, YX351, and YX352
 VBLKDO: YX339, YX340, YX341, YX344 through YX348, YX355, and YX356
 VBLKDP: VHBLKDP
 SBLKEZ: YX339 through YX442, YX442MS, YX442MSD, YX443 through YX448, YX451, YX451DL, YX452, YX452RE, YX455, and YX456

TABLES:

1A: Analytical Results with Qualifications
 1B: Data Qualifier Definitions for Organic Data Review

TPO ACTION:

Quantitation limits for several semivolatile analytes in two samples are rejected (R) due to low internal standard area counts.

TPO ATTENTION:

(1) Several results are qualified as nondetected and estimated (U,J) due to contamination in method and storage blanks. (2) Several results are estimated (J) due to calibration problems. (3) Several semivolatile results in two samples are estimated (J) due to low internal standard area counts.

DL-Dilution; MS-Matrix Spike; MSD-Matrix Spike Duplicate;
 RE-Reanalysis; VHBLK-Storage Blank
 97-02-10-AS-01/25218M02.RPT

SAMPLING ISSUES:

None.

ADDITIONAL COMMENTS:

*Equipment blanks YX330 and YX332 and field blank YX331 were collected with the samples of this sample delivery group (SDG). The results for equipment blank YX330, collected on December 9, 1996, and field blank YX331 and equipment blank YX332, collected on December 10, 1996, are located in Case 25218 Memo #01, SDG YX323. Methylene chloride was detected in field blank YX331 and equipment blank YX332 at concentrations of 14 µg/L (14 µg/Kg) and 5 µg/L (5 µg/Kg), respectively. Di-n-butylphthalate and bis(2-ethylhexyl)phthalate were detected in equipment blank YX330 at concentrations of 0.5 µg/L (17 µg/Kg) and 1 µg/L (33 µg/Kg), respectively.

Acetone was detected in background sample YX343 at a concentration of 26 µg/Kg.

The Tentatively Identified Compounds (TICs) found in the samples are reported on the Form 1Es, 1Fs, and in alkane reports included in this report. The user should note that the alkane report summarizes TICs which are alkanes. No TICs were detected in the volatile fraction of samples YX339 through YX342, YX344 through YX348, YX355, and YX356.

All method requirements specified in the USEPA Contract Laboratory Program (CLP) Statement of Work (SOW) for Organic Analysis, OLM03.2, have been met. This report was prepared according to the SOW and the document, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," February 1994.

II. Validation Summary

	VOA		BNA	
	Acceptable/Comment		Acceptable/Comment	
HOLDING TIMES	[YES]	[]	[YES]	[]
GC/MS TUNE/GC PERFORMANCE	[YES]	[]	[YES]	[]
CALIBRATIONS	[NO]	[E]	[NO]	[F]
FIELD QC	[NO]	[C]	[NO]	[D,I]
LABORATORY BLANKS	[NO]	[C]	[NO]	[D]
SURROGATES	[YES]	[]	[YES]	[]
MATRIX SPIKE/DUPLICATES	[YES]	[]	[YES]	[H]
INTERNAL STANDARDS	[YES]	[]	[NO]	[A,G]
COMPOUND IDENTIFICATION	[YES]	[J]	[YES]	[J]
COMPOUND QUANTITATION	[YES]	[B]	[YES]	[B]
SYSTEM PERFORMANCE	[YES]	[]	[YES]	[]

N/A = Not Applicable

III. Validity and Comments

- A. The quantitation limits for the following semivolatile target analytes are rejected due to low internal standard areas. The results are flagged "R" in Table 1A.
- 4,6-Dinitro-2-methylphenol, N-nitrosodiphenylamine, 4-bromophenyl phenyl ether, hexachlorobenzene, carbazole, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene in sample YX351

- Butylbenzylphthalate, 3,3'-dichlorobenzidine, benzo(a)anthracene, and chrysene in samples YX351 and YX352
- bis(2-Ethylhexyl)phthalate in sample YX352

The internal standard areas for the samples listed above fell below the quality control (QC) advisory criteria, as shown below.

<u>Sample</u>	<u>Internal Standard</u>	<u>Area</u>	<u>QC Limits</u>
YX351	Phenanthrene-d ₁₀	20247	46342-185368
	Chrysene-d ₁₂	3104	12447-49788
	Perylene-d ₁₂	1665	6742-26966
YX352	Chrysene-d ₁₂	4798	12447-49788

The extremely low area counts reported for the internal standards indicate a severe loss of sensitivity. The results for the nondetected target analytes listed above are rejected.

Low area counts were observed in both the original and the dilution analyses of sample YX351. Sample YX352 was reanalyzed due to the low internal standard areas in accordance with SOW requirements. The results from the original analysis of sample YX352 are presented in Table 1A in order to minimize the number of rejected data points.

Internal standards, introduced into every calibration standard, blank, sample, and QC sample, monitor changes in analyte response due to matrix effects and fluctuations in instrument sensitivity throughout the analytical sequence. Internal standards are used to quantitate the concentration of target analytes and surrogate standards.

- B. The following results, denoted with an "L" qualifier, are estimated and flagged "J" in Table 1A.

- All results below the contract required quantitation limits

Results below the contract required quantitation limits (CRQLs) are considered to be qualitatively acceptable, but quantitatively unreliable, due to the uncertainty in analytical precision near the limit of detection.

- C. The detected results for the following volatile target analytes are qualified as nondetected and estimated due to laboratory, equipment, and field blank contamination. The results are flagged "U,J" in Table 1A.

- Methylene chloride in all of the samples

Methylene chloride was found in field blank YX331, equipment blank YX332, laboratory method blanks VBLKDN, VBLKDO, and storage blank VHBLKDP (see Table 1A and Additional Comments for concentrations). The results for the samples listed above are considered nondetected and estimated (U,J) and the quantitation limits have been increased according to the blank qualification rules presented below.

No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for the common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result (U,J). If the

sample result is less than the CRQL, the result is reported as nondetected (U,J) at the CRQL.

A laboratory method blank is laboratory reagent water or baked sand for solid matrices analyzed with all reagents, surrogates, and internal standards and carried through the same sample preparation and analytical procedures as the field samples. The laboratory method blank is used to determine the level of contamination introduced by the laboratory during extraction and analysis.

A storage blank is laboratory reagent water stored in a vial in the same area as the field samples. The storage blank is used to determine the level of contamination introduced by the laboratory during sample storage prior to analysis.

An equipment blank is clean water that has been collected as a sample using decontaminated sampling equipment. The intent of an equipment blank is to monitor for contamination introduced by the sampling activity, although any laboratory introduced contamination will also be present.

A field blank is clean water prepared as a sample in the field by the sampler and shipped to the laboratory with the samples. A field blank is intended to detect contaminants that may have been introduced in the field, although any laboratory introduced contamination will also be present. Contaminants that are found in the field blank which are absent in the laboratory method blank could be indicative of a field QC problem, a deficiency in the bottle preparation procedure, a difference in preparation of the laboratory and field blanks, or other indeterminate error.

D. The detected results for the following semivolatile target analytes are qualified as nondetected and estimated due to laboratory and equipment blank contamination. The results are flagged "U,J" in Table 1A.

- Di-n-butylphthalate in samples YX339, YX341 through YX348, YX352, YX355, and YX356
- bis(2-Ethylhexyl)phthalate in sample YX355
- Di-n-octylphthalate in samples YX339, YX343, YX345, YX347, YX351, and YX352

Di-n-butylphthalate was found in laboratory method blank SBLKEZ and equipment blank YX330. Di-n-octylphthalate and bis(2-ethylhexyl)phthalate were found in laboratory method blank SBLKEZ and equipment blank YX330, respectively. (See Table 1A and Additional Comments for concentrations.) The results for the samples listed above are considered nondetected and estimated (U,J) and the quantitation limits have been increased according to the blank qualification rules presented below.

No positive results are reported unless the concentration of the compound in the sample exceeds 10 times the amount in any associated blank for the common laboratory contaminants or 5 times the amount for other compounds. If the sample result is greater than the CRQL, the quantitation limit is raised to the sample result (U,J). If the sample result is less than the CRQL, the result is reported as nondetected (U,J) at the CRQL.

E. The quantitation limits for the following volatile target analytes are estimated due to large percent differences (%Ds) in the continuing calibrations. The results are flagged "J" in Table 1A.

- 2-Butanone and bromodichloromethane in samples YX339, YX340, YX341, YX344 through YX348, YX355, YX356, and method blank VBLKDO
- trans-1,3-Dichloropropene in samples YX339, YX340, YX341, YX344 through YX348, YX355, YX356, method blanks VBLKDO, VBLKDP, and storage blank VHBLKDP

Percent differences of -26.0, +26.2, and -31.3 were observed for 2-butanone, bromodichloromethane, and trans-1,3-dichloropropene, respectively, in the continuing calibration performed December 16, 1996. A %D of -36.8 was also observed for trans-1,3-dichloropropene in the continuing calibration performed December 17, 1996. These values exceed the $\pm 25.0\%$ QC advisory validation criterion.

The continuing calibration checks the instrument performance daily and produces the relative response factors (RRFs) for target analytes that are used for quantitation.

- F. The quantitation limits for the following semivolatile target analytes are estimated due to large %Ds in the continuing calibration. The results are flagged "J" in Table 1A.

- Pyrene and di-n-octylphthalate in sample YX340

Percent differences of -25.3 and -28.4 were observed for pyrene and di-n-octylphthalate, respectively, in the continuing calibration performed December 31, 1996. These values exceed the $\pm 25.0\%$ QC advisory validation criterion.

- G. The detected results and quantitation limits for the following semivolatile target analytes are estimated due to low internal standard areas. The results are flagged "J" in Table 1A.

- Hexachlorocyclopentadiene, 2,4,6-trichlorophenol, 2,4,5-trichlorophenol, 2-chloronaphthalene, 2-nitroaniline, dimethylphthalate, acenaphthylene, 2,6-dinitrotoluene, 3-nitroaniline, acenaphthene, 2,4-dinitrophenol, 4-nitrophenol, dibenzofuran, 2,4-dinitrotoluene, diethylphthalate, 4-chlorophenyl phenyl ether, fluorene, 4-nitroaniline, and bis(2-ethylhexyl)phthalate in sample YX351
- 4,6-Dinitro-2-methylphenol, N-nitrosodiphenylamine, 4-bromophenyl phenyl ether, hexachlorobenzene, carbazole, benzo(b)fluoranthene, benzo(k)fluoranthene, benzo(a)pyrene, indeno(1,2,3-cd)pyrene, dibenz(a,h)anthracene, and benzo(g,h,i)perylene in sample YX352
- Pentachlorophenol, phenanthrene, anthracene, di-n-butylphthalate, fluoranthene, pyrene, and di-n-octylphthalate in samples YX351 and YX352

The internal standard areas for the samples listed above fell below the QC advisory criteria, as shown below.

<u>Sample</u>	<u>Internal Standard</u>	<u>Area</u>	<u>QC Limits</u>
YX351	Acenaphthene-d ₁₀	26584	30016-120064
	Phenanthrene-d ₁₀	20247	46342-185368
	Chrysene-d ₁₂	3104	12447-49788
	Perylene-d ₁₂	1665	6742-26966
YX352	Phenanthrene-d ₁₀	24735	46342-185368
	Chrysene-d ₁₂	4798	12447-49788
	Perylene-d ₁₂	3422	6742-26966

The detected results and quantitation limits for the samples listed above are considered quantitatively questionable. Where the results are nondetected, false negatives may exist.

- H. The matrix spike result for 2,4-dinitrotoluene in QC sample YX342MS did not meet the criteria for accuracy specified in the SOW. The percent recoveries for 2,4-dinitrotoluene are presented below.

<u>Analyte</u>	YX342MS	YX342MSD	QC limits
	<u>%Recovery</u>	<u>%Recovery</u>	<u>%Recovery</u>
2,4-Dinitrotoluene	100	86	28-89

The results obtained may indicate poor laboratory technique, sample nonhomogeneity, or matrix effects which may interfere with accurate analysis. Although the recovery for 2,4-dinitrotoluene in QC sample YX342MS is above the QC limits, this recovery does not indicate an analytical deficiency.

Matrix spike sample analysis provides information about the effect of the sample matrix on sample preparation and measurement.

- I. bis(2-Ethylhexyl)phthalate was detected in field duplicate sample YX341 at a concentration of 2300 $\mu\text{g/Kg}$ but was not detected in the associated field duplicate sample YX355. A relative percent difference (RPD) value was not calculated. The imprecision in the results of the analysis of the field duplicate pair may be due to the sample matrix, sample nonhomogeneity, method defects, or poor sampling or laboratory technique. The effect on the quality of the data is not known.

The analysis of field duplicate samples is a measure of both field and analytical precision.

- J. Although not detected in any associated blanks, acetone and phthalates have been commonly found as contaminants in the field and in many laboratories. The user should note that the analytes found in the samples listed below may be artifacts.

- Acetone in samples YX339 through YX344, YX346, YX347, YX348, YX352, and YX356
- Diethylphthalate in samples YX339 through YX348, YX351, YX355, and YX356
- Di-n-butylphthalate in sample YX351
- Butylbenzylphthalate in samples YX341 and YX344
- bis(2-Ethylhexyl)phthalate in samples YX340, YX341, YX343 through YX346, YX348, YX351, and YX356

TABLE 1A

Case No.: 25218 Memo #02

Site: Victoria Golf Course

Analysis Type: Low Level Soil Samples
for Volatiles

Lab.: American Technical & Analytical Services (ATAS)

Reviewer: Adriane Scheele, ESAT/Lockheed

Date: February 10, 1997

Concentration in µg/Kg

Station Location	SS-1-10			SS-1-20			SS-2-10			SS-2-20			SS-3-10		
Sample I.D.	YX339 D1			YX340			YX341 D2			YX342			YX343 BG		
Date of Collection	12/10/96			12/10/96			12/9/96			12/9/96			12/10/96		
Volatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Chloromethane	12 U			12 U			11 U			13 U			14 U		
Bromomethane	12 U			12 U			11 U			13 U			14 U		
Vinyl chloride	12 U			12 U			11 U			13 U			14 U		
Chloroethane	12 U			12 U			11 U			13 U			14 U		
Methylene chloride	27 U	J	C	35 U	J	C	33 U	J	C	16 U	J	C	18 U	J	C
Acetone	6 L	J	BJ	4 L	J	BJ	3 L	J	BJ	43		J	26		J
Carbon disulfide	12 U			12 U			11 U			13 U			14 U		
1,1-Dichloroethene	12 U			12 U			11 U			13 U			14 U		
1,1-Dichloroethane	12 U			12 U			11 U			13 U			14 U		
1,2-Dichloroethene (total)	12 U			12 U			11 U			13 U			14 U		
Chloroform	12 U			12 U			11 U			13 U			14 U		
1,2-Dichloroethane	12 U			12 U			11 U			13 U			14 U		
2-Butanone	12 U	J	E	12 U	J	E	11 U	J	E	13 U			14 U		
1,1,1-Trichloroethane	12 U			12 U			11 U			13 U			14 U		
Carbon tetrachloride	12 U			12 U			11 U			13 U			14 U		
Bromodichloromethane	12 U	J	E	12 U	J	E	11 U	J	E	13 U			14 U		
1,2-Dichloropropane	12 U			12 U			11 U			13 U			14 U		
cis-1,3-Dichloropropene	12 U			12 U			11 U			13 U			14 U		
Trichloroethene	12 U			12 U			11 U			13 U			14 U		
Dibromochloromethane	12 U			12 U			11 U			13 U			14 U		
1,1,2-Trichloroethane	12 U			12 U			11 U			13 U			14 U		
Benzene	12 U			12 U			11 U			13 U			14 U		
trans-1,3-Dichloropropene	12 U	J	E	12 U	J	E	11 U	J	E	13 U			14 U		
Bromoform	12 U			12 U			11 U			13 U			14 U		
4-Methyl-2-pentanone	12 U			12 U			11 U			13 U			14 U		
2-Hexanone	12 U			12 U			11 U			13 U			14 U		
Tetrachloroethene	12 U			12 U			11 U			13 U			14 U		
1,1,2,2-Tetrachloroethane	12 U			12 U			11 U			13 U			14 U		
Toluene	12 U			12 U			11 U			13 U			14 U		
Chlorobenzene	12 U			12 U			11 U			13 U			14 U		
Ethylbenzene	12 U			12 U			3 L	J	B	13 U			14 U		
Styrene	12 U			12 U			11 U			13 U			14 U		
Xylene (total)	12 U			12 U			13			13 U			14 U		
Percent Solids	84 %			85 %			88 %			79 %			70 %		

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank

TB-Trip Blank, BG-Background Sample

TABLE 1A

Case No.: 25218 Memo #02

Site: Victoria Golf Course

Analysis Type: Low Level Soil Samples
for Volatiles

Lab.: American Technical & Analytical Services (ATAS)

Reviewer: Adriane Scheele, ESAT/Lockheed

Date: February 10, 1997

Concentration in µg/Kg

Station Location	SS-3-20			SS-4-10			SS-4-20			SS-5-10			SS-5-20		
Sample I.D.	YX344 BG			YX345 BG			YX346 BG			YX347			YX348		
Date of Collection	12/10/96			12/10/96			12/10/96			12/10/96			12/10/96		
Volatiles Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Chloromethane	12 U			12 U			12 U			12 U			12 U		
Bromomethane	12 U			12 U			12 U			12 U			12 U		
Vinyl chloride	12 U			12 U			12 U			12 U			12 U		
Chloroethane	12 U			12 U			12 U			12 U			12 U		
Methylene chloride	12 U	J	C	12 U	J	C	12 U	J	C	13 U	J	C	14 U	J	C
Acetone	9 L	J	BJ	12 U			4 L	J	BJ	5 L	J	BJ	8 L	J	BJ
Carbon disulfide	12 U			12 U			12 U			12 U			12 U		
1,1-Dichloroethene	12 U			12 U			12 U			12 U			12 U		
1,1-Dichloroethane	12 U			12 U			12 U			12 U			12 U		
1,2-Dichloroethene (total)	12 U			12 U			12 U			12 U			12 U		
Chloroform	12 U			12 U			12 U			12 U			12 U		
1,2-Dichloroethane	12 U			12 U			12 U			12 U			12 U		
2-Butanone	12 U	J	E	12 U	J	E	12 U	J	E	12 U	J	E	12 U	J	E
1,1,1-Trichloroethane	12 U			12 U			12 U			12 U			12 U		
Carbon tetrachloride	12 U			12 U			12 U			12 U			12 U		
Bromodichloromethane	12 U	J	E	12 U	J	E	12 U	J	E	12 U	J	E	12 U	J	E
1,2-Dichloropropane	12 U			12 U			12 U			12 U			12 U		
cis-1,3-Dichloropropene	12 U			12 U			12 U			12 U			12 U		
Trichloroethene	12 U			12 U			12 U			12 U			12 U		
Dibromochloromethane	12 U			12 U			12 U			12 U			12 U		
1,1,2-Trichloroethane	12 U			12 U			12 U			12 U			12 U		
Benzene	12 U			12 U			12 U			12 U			12 U		
trans-1,3-Dichloropropene	12 U	J	E	12 U	J	E	12 U	J	E	12 U	J	E	12 U	J	E
Bromoform	12 U			12 U			12 U			12 U			12 U		
4-Methyl-2-pentanone	12 U			12 U			12 U			12 U			12 U		
2-Hexanone	12 U			12 U			12 U			12 U			12 U		
Tetrachloroethene	12 U			12 U			12 U			12 U			12 U		
1,1,2,2-Tetrachloroethane	12 U			12 U			12 U			12 U			12 U		
Toluene	12 U			12 U			12 U			12 U			12 U		
Chlorobenzene	12 U			12 U			12 U			12 U			12 U		
Ethylbenzene	12 U			12 U			12 U			12 U			12 U		
Styrene	12 U			12 U			12 U			12 U			12 U		
Xylene (total)	12 U			12 U			12 U			12 U			12 U		
Percent Solids	81 %			85 %			80 %			80 %			82 %		

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank

TB-Trip Blank, BG-Background Sample

TABLE 1A

Case No.: 25218 Memo #02

Site: Victoria Golf Course

Analysis Type: Low Level Soil Samples
for Volatiles

Lab.: American Technical & Analytical Services (ATAS)

Reviewer: Adriane Scheele, ESAT/Lockheed

Date: February 10, 1997

Concentration in µg/Kg

Station Location	SS-7-10			SS-7-20			SS-9-10			SS-10-10			Method Blank		
Sample I.D.	YX351			YX352			YX355 D2			YX356 D1			VBLKDN		
Date of Collection	12/9/96			12/9/96			12/9/96			12/10/96					
Volatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Chloromethane	12 U			15 U			12 U			12 U			10 U		
Bromomethane	12 U			15 U			12 U			12 U			10 U		
Vinyl chloride	12 U			15 U			12 U			12 U			10 U		
Chloroethane	12 U			15 U			12 U			12 U			10 U		
Methylene chloride	16 U	J	C	15 U	J	C	12 U	J	C	32 U	J	C	7 L	J	BC
Acetone	200			34		J	12 U			3 L	J	BJ	10 U		
Carbon disulfide	12 U			15 U			12 U			12 U			10 U		
1,1-Dichloroethene	12 U			15 U			12 U			12 U			10 U		
1,1-Dichloroethane	12 U			15 U			12 U			12 U			10 U		
1,2-Dichloroethene (total)	12 U			15 U			12 U			12 U			10 U		
Chloroform	12 U			15 U			12 U			12 U			10 U		
1,2-Dichloroethane	12 U			15 U			12 U			12 U			10 U		
2-Butanone	12 U			15 U			12 U	J	E	12 U	J	E	10 U		
1,1,1-Trichloroethane	12 U			15 U			12 U			12 U			10 U		
Carbon tetrachloride	12 U			15 U			12 U			12 U			10 U		
Bromodichloromethane	12 U			15 U			12 U	J	E	12 U	J	E	10 U		
1,2-Dichloropropane	12 U			15 U			12 U			12 U			10 U		
cis-1,3-Dichloropropene	12 U			15 U			12 U			12 U			10 U		
Trichloroethene	12 U			15 U			12 U			12 U			10 U		
Dibromochloromethane	12 U			15 U			12 U			12 U			10 U		
1,1,2-Trichloroethane	12 U			15 U			12 U			12 U			10 U		
Benzene	12 U			15 U			12 U			12 U			10 U		
trans-1,3-Dichloropropene	12 U			15 U			12 U	J	E	12 U	J	E	10 U		
Bromoform	12 U			15 U			12 U			12 U			10 U		
4-Methyl-2-pentanone	12 U			15 U			12 U			12 U			10 U		
2-Hexanone	12 U			15 U			12 U			12 U			10 U		
Tetrachloroethene	12 U			15 U			12 U			12 U			10 U		
1,1,2,2-Tetrachloroethane	12 U			15 U			12 U			12 U			10 U		
Toluene	30			15 U			12 U			12 U			10 U		
Chlorobenzene	12 U			15 U			12 U			12 U			10 U		
Ethylbenzene	79			15 U			12 U			12 U			10 U		
Styrene	12 U			15 U			12 U			12 U			10 U		
Xylene (total)	190			15 U			12 U			12 U			10 U		
Percent Solids	84 %			68 %			85 %			85 %			N/A		

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank

TB-Trip Blank, BG-Background Sample

Page 4 of 11

Case No.: 25218 Memo #02

Analysis Type: Low Level Soil Samples
for Volatiles

Lab.: American Technical & Analytical Services (ATAS)

Reviewer: Adriane Scheele, ESAT/Lockheed

Date: February 10, 1997

Concentration in $\mu\text{g/Kg}$ [illegible]

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank

TB-Trip Blank, BG-Background Sample

N/A-Not Applicable, NA-Not Analyzed

TABLE 1A

Site: Victoria Golf Course

Analysis Type: Low Level Water Blanks
for Volatiles

Lab.: American Technical & Analytical Services (ATAS)

Reviewer: Adriane Scheele, ESAT/Lockheed

Date: February 10, 1997

Concentration in $\mu\text{g/L}$

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank

TB-Trip Blank, BG-Background Sample

ANALYTICAL RESULTS

Page 6 of 11

Case No.: 25218 Memo #02

TABLE 1A

Site: Victoria Golf Course

Lab.: American Technical & Analytical Services (ATAS)

Analysis Type: Low Level Soil Samples
for Semivolatiles

Reviewer: Adriane Scheele, ESAT/Lockheed

Date: February 10, 1997

Concentration in µg/Kg

Station Location	SS-1-10			SS-1-20			SS-2-10			SS-2-20			SS-3-10			SS-3-20			SS-4-10		
Sample I.D.	YX339 D1			YX340			YX341 D2			YX342			YX343 BG			YX344 BG			YX345 BG		
Date of Collection	12/10/96			12/10/96			12/9/96			12/9/96			12/10/96			12/10/96			12/10/96		
Semivolatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Phenol	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
bis(2-Chloroethyl)ether	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
2-Chlorophenol	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
3-Dichlorobenzene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
1,4-Dichlorobenzene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
1,2-Dichlorobenzene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
2-Methylphenol	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
2,2'-oxybis(1-Chloropropane)	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
4-Methylphenol	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
N-Nitroso-di-n-propylamine	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Hexachloroethane	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Nitrobenzene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Isophorone	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
2-Nitrophenol	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
2,4-Dimethylphenol	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
bis(2-Chloroethoxy)methane	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
2,4-Dichlorophenol	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
1,2,4-Trichlorobenzene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Naphthalene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Chloroaniline	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Hexachlorobutadiene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
4-Chloro-3-methylphenol	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
2-Methylnaphthalene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Hexachlorocyclopentadiene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
2,4,6-Trichlorophenol	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
2,4,5-Trichlorophenol	990 U			980 U			940 U			1000 U			1200 U			1000 U			980 U		
2-Chloronaphthalene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
2-Nitroaniline	990 U			980 U			940 U			1000 U			1200 U			1000 U			980 U		
Dimethylphthalate	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Acenaphthylene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
2,6-Dinitrotoluene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
3-Nitroaniline	990 U			980 U			940 U			1000 U			1200 U			1000 U			980 U		

Station Location	SS-1-10			SS-1-20			SS-2-10			SS-2-20			SS-3-10			SS-3-20			SS-4-10		
Sample I.D.	YX339 D1			YX340			YX341 D2			YX342			YX343 BG			YX344 BG			YX345 BG		
Date of Collection	12/10/96			12/10/96			12/9/96			12/9/96			12/10/96			12/10/96			12/10/96		
Semivolatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Acenaphthene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
2,4-Dinitrophenol	990 U			980 U			940 U			1000 U			1200 U			1000 U			980 U		
4-Nitrophenol	990 U			980 U			940 U			1000 U			1200 U			1000 U			980 U		
Dibenzofuran	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
2,4-Dinitrotoluene	390 U			390 U			380 U			420 U		H	470 U			410 U			390 U		
Diethylphthalate	24 L J	BJ		22 L J	BJ		23 L J	BJ		38 L J	BJ		30 L J	BJ		23 L J	BJ		26 L J	BJ	
4-Chlorophenyl phenyl ether	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Fluorene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Nitroaniline	990 U			980 U			940 U			1000 U			1200 U			1000 U			980 U		
4,6-Dinitro-2-methylphenol	990 U			980 U			940 U			1000 U			1200 U			1000 U			980 U		
N-Nitrosodiphenylamine	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
4-Bromophenyl phenyl ether	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Hexachlorobenzene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Pentachlorophenol	990 U			980 U			940 U			1000 U			1200 U			1000 U			980 U		
Phenanthrene	390 U			390 U			54 L J	B		420 U			470 U			410 U			390 U		
Anthracene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Carbazole	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Di-n-butylphthalate	390 U J	D		390 U			380 U J	D		420 U J	D		470 U J	D		410 U J	D		390 U J	D	
Fluoranthene	390 U			390 U			38 L J	B		420 U			470 U			410 U			390 U		
Pyrene	390 U			390 U J	F		61 L J	B		420 U			470 U			410 U			390 U		
Butylbenzylphthalate	390 U			390 U			32 L J	BJ		420 U			470 U			22 L J	BJ		390 U		
3,3'-Dichlorobenzidine	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Benzo(a)anthracene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Chrysene	390 U			390 U			38 L J	B		420 U			470 U			410 U			390 U		
2-Ethylhexylphthalate	390 U			88 L J	BJ		2300	IJ		420 U			61 L J	BJ		40 L J	BJ		49 L J	BJ	
Di-n-octylphthalate	390 U J	D		390 U J	F		380 U			420 U			470 U J	D		410 U			390 U J	D	
Benzo(b)fluoranthene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Benzo(k)fluoranthene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Benzo(a)pyrene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Indeno(1,2,3-cd)pyrene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Dibenz(a,h)anthracene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Benzo(g,h,i)perylene	390 U			390 U			380 U			420 U			470 U			410 U			390 U		
Percent Solids	84 %			85 %			88 %			79 %			70 %			81 %			85 %		

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

BG-Background Sample

ANALYTICAL RESULTS

Page 8 of 11

Case No.: 25218 Memo #02

TABLE 1A

Site: Victoria Golf Course

Lab.: American Technical & Analytical Services (ATAS)

Analysis Type: Low Level Soil Samples
for Semivolatiles

Reviewer: Adriane Scheele, ESAT/Lockheed

Date: February 10, 1997

Concentration in µg/Kg

Station Location	SS-4-20			SS-5-10			SS-5-20			SS-7-10			SS-7-20			SS-9-10			SS-10-10		
Sample I.D.	YX346 BG			YX347			YX348			YX351			YX352			YX355 D2			YX356 D1		
Date of Collection	12/10/96			12/10/96			12/10/96			12/9/96			12/9/96			12/9/96			12/10/96		
Semivolatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Phenol	410 U			410 U			400 U			9400			800			390 U			390 U		
bis(2-Chloroethyl)ether	410 U			410 U			400 U			390 U			480 U			390 U			390 U		
2-Chlorophenol	410 U			410 U			400 U			390 U			480 U			390 U			390 U		
3-Dichlorobenzene	410 U			410 U			400 U			390 U			480 U			390 U			390 U		
1,4-Dichlorobenzene	410 U			410 U			400 U			29 L J B			50 L J B			390 U			390 U		
1,2-Dichlorobenzene	410 U			410 U			400 U			390 U			480 U			390 U			390 U		
2-Methylphenol	410 U			410 U			400 U			100 L J B			480 U			390 U			390 U		
2,2'-oxybis(1-Chloropropane)	410 U			410 U			400 U			390 U			480 U			390 U			390 U		
4-Methylphenol	410 U			410 U			400 U			5900			1900			390 U			390 U		
N-Nitroso-di-n-propylamine	410 U			410 U			400 U			390 U			480 U			390 U			390 U		
Hexachloroethane	410 U			410 U			400 U			390 U			480 U			390 U			390 U		
Nitrobenzene	410 U			410 U			400 U			390 U			480 U			390 U			390 U		
Isophorone	410 U			410 U			400 U			390 U			480 U			390 U			390 U		
2-Nitrophenol	410 U			410 U			400 U			390 U			480 U			390 U			390 U		
2,4-Dimethylphenol	410 U			410 U			400 U			390 U			480 U			390 U			390 U		
bis(2-Chloroethoxy)methane	410 U			410 U			400 U			390 U			480 U			390 U			390 U		
2,4-Dichlorophenol	410 U			410 U			400 U			390 U			480 U			390 U			390 U		
1,2,4-Trichlorobenzene	410 U			410 U			400 U			390 U			480 U			390 U			390 U		
Naphthalene	410 U			410 U			400 U			900			1100			390 U			390 U		
Chloroaniline	410 U			410 U			400 U			390 U			480 U			390 U			390 U		
Hexachlorobutadiene	410 U			410 U			400 U			390 U			480 U			390 U			390 U		
4-Chloro-3-methylphenol	410 U			410 U			400 U			390 U			480 U			390 U			390 U		
2-Methylnaphthalene	410 U			410 U			400 U			250 L J B			460 L J B			390 U			390 U		
Hexachlorocyclopentadiene	410 U			410 U			400 U			390 U J G			480 U			390 U			390 U		
2,4,6-Trichlorophenol	410 U			410 U			400 U			390 U J G			480 U			390 U			390 U		
2,4,5-Trichlorophenol	1000 U			1000 U			1000 U			990 U J G			1200 U			980 U			980 U		
2-Chloronaphthalene	410 U			410 U			400 U			390 U J G			480 U			390 U			390 U		
2-Nitroaniline	1000 U			1000 U			1000 U			990 U J G			1200 U			980 U			980 U		
Dimethylphthalate	410 U			410 U			400 U			390 U J G			480 U			390 U			390 U		
Acenaphthylene	410 U			410 U			400 U			390 U J G			480 U			390 U			390 U		
2,6-Dinitrotoluene	410 U			410 U			400 U			390 U J G			480 U			390 U			390 U		
3-Nitroaniline	1000 U			1000 U			1000 U			990 U J G			1200 U			980 U			980 U		

Station Location	SS-4-20			SS-5-10			SS-5-20			SS-7-10			SS-7-20			SS-9-10			SS-10-10		
Sample I.D.	YX346 BG			YX347			YX348			YX351			YX352			YX355 D2			YX356 D1		
Date of Collection	12/10/96			12/10/96			12/10/96			12/9/96			12/9/96			12/9/96			12/10/96		
Semivolatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Acenaphthene	410 U			410 U			400 U			58 L J	BG		54 L J	B		390 U			390 U		
2,4-Dinitrophenol	1000 U			1000 U			1000 U			990 U J	G		1200 U			980 U			980 U		
4-Nitrophenol	1000 U			1000 U			1000 U			990 U J	G		1200 U			980 U			980 U		
Dibenzofuran	410 U			410 U			400 U			390 U J	G		40 L J	B		390 U			390 U		
2,4-Dinitrotoluene	410 U			410 U			400 U			390 U J	G		480 U			390 U			390 U		
Diethylphthalate	25 L J	BJ		36 L J	BJ		24 L J	BJ		78 L J	BGJ		480 U			23 L J	BJ		29 L J	BJ	
4-Chlorophenyl phenyl ether	410 U			410 U			400 U			390 U J	G		480 U			390 U			390 U		
Fluorene	410 U			410 U			400 U			140 L J	BG		98 L J	B		390 U			390 U		
Nitroaniline	1000 U			1000 U			1000 U			990 U J	G		1200 U			980 U			980 U		
4,6-Dinitro-2-methylphenol	1000 U			1000 U			1000 U			990 U R	A		1200 U J	G		980 U			980 U		
N-Nitrosodiphenylamine	410 U			410 U			400 U			390 U R	A		550 J	G		390 U			390 U		
4-Bromophenyl phenyl ether	410 U			410 U			400 U			390 U R	A		480 U J	G		390 U			390 U		
Hexachlorobenzene	410 U			410 U			400 U			390 U R	A		480 U J	G		390 U			390 U		
Pentachlorophenol	1000 U			1000 U			1000 U			390 L J	BG		1200 U J	G		980 U			980 U		
Phenanthrene	410 U			410 U			400 U			600 J	G		490 J	G		390 U			390 U		
Anthracene	410 U			410 U			400 U			64 L J	BG		88 L J	BG		390 U			390 U		
Carbazole	410 U			410 U			400 U			390 U R	A		480 U J	G		390 U			390 U		
Di-n-butylphthalate	410 U J	D		410 U J	D		400 U J	D		270 L J	BGJ		480 U J	DG		390 U J	D		390 U J	D	
Fluoranthene	410 U			410 U			400 U			120 L J	BG		240 L J	BG		390 U			390 U		
Pyrene	410 U			410 U			400 U			200 L J	BG		270 L J	BG		390 U			390 U		
Butylbenzylphthalate	410 U			410 U			400 U			390 U R	A		480 U R	A		390 U			390 U		
3,3'-Dichlorobenzidine	410 U			410 U			400 U			390 U R	A		480 U R	A		390 U			390 U		
Benzo(a)anthracene	410 U			410 U			400 U			390 U R	A		480 U R	A		390 U			390 U		
Chrysene	410 U			410 U			400 U			390 U R	A		480 U R	A		390 U			390 U		
2-Ethylhexylphthalate	41 L J	BJ		410 U			47 L J	BJ		750 J	GJ		480 U R	A		390 U J	DI		130 L J	BJ	
Di-n-octylphthalate	410 U			410 U J	D		400 U			390 U J	DG		480 U J	DG		390 U			390 U		
Benzo(b)fluoranthene	410 U			410 U			400 U			390 U R	A		480 U J	G		390 U			390 U		
Benzo(k)fluoranthene	410 U			410 U			400 U			390 U R	A		480 U J	G		390 U			390 U		
Benzo(a)pyrene	410 U			410 U			400 U			390 U R	A		480 U J	G		390 U			390 U		
Indeno(1,2,3-cd)pyrene	410 U			410 U			400 U			390 U R	A		480 U J	G		390 U			390 U		
Dibenz(a,h)anthracene	410 U			410 U			400 U			390 U R	A		480 U J	G		390 U			390 U		
Benzo(g,h,i)perylene	410 U			410 U			400 U			390 U R	A		480 U J	G		390 U			390 U		
Percent Solids	80 %			80 %			82 %			84 %			68 %			85 %			85 %		

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

BG-Background Sample

TABLE 1A

Analysis Type: Low Level Soil Samples
for Semivolatiles

Reviewer: Adriane Scheele, ESAT/Lockheed

Date: February 10, 1997

Concentration in $\mu\text{g/Kg}$ [illegible]

Sample I.D.	Method Blank SBLKEZ			CRQL														
Semivolatile Compound	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Acenaphthene	330 U			330														
2,4-Dinitrophenol	830 U			830														
4-Nitrophenol	830 U			830														
Dibenzofuran	330 U			330														
2,4-Dinitrotoluene	330 U			330														
Diethylphthalate	330 U			330														
4-Chlorophenyl phenyl ether	330 U			330														
Fluorene	330 U			330														
4-Nitroaniline	830 U			830														
4,6-Dinitro-2-methylphenol	830 U			830														
N-Nitrosodiphenylamine	330 U			330														
4-Bromophenyl phenyl ether	330 U			330														
Hexachlorobenzene	330 U			330														
Pentachlorophenol	830 U			830														
Phenanthrene	330 U			330														
Anthracene	330 U			330														
Carbazole	330 U			330														
Di-n-butylphthalate	18 L	J	BD	330														
Fluoranthene	330 U			330														
Pyrene	330 U			330														
Butylbenzylphthalate	330 U			330														
3,3'-Dichlorobenzidine	330 U			330														
Benzo(a)anthracene	330 U			330														
Chrysene	330 U			330														
Bis(2-Ethylhexyl)phthalate	330 U			330														
Di-n-octylphthalate	200 L	J	BD	330														
Benzo(b)fluoranthene	330 U			330														
Benzo(k)fluoranthene	330 U			330														
Benzo(a)pyrene	330 U			330														
Indeno(1,2,3-cd)pyrene	330 U			330														
Dibenz(a,h)anthracene	330 U			330														
Benzo(g,h,i)perylene	330 U			330														

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com-Comments. Refer to the Corresponding Section in the Narrative for each letter.

CRQL-Contract Required Quantitation Limit

N/A-Not Applicable

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank

BG-Background Sample

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR ORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared according to the document, "USEPA Contract Laboratory Program National Functional Guidelines for Organic Data Review," February 1994.

- U The analyte was analyzed for, but was not detected above the reported sample quantitation limit.
- L Indicates results which fall below the Contract Required Quantitation Limit. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
- J The analyte was positively identified; the associated numerical value is the approximate concentration of the analyte in the sample.
- N The analysis indicates the presence of an analyte for which there is presumptive evidence to make a "tentative identification."
- NJ The analysis indicates the presence of an analyte that has been "tentatively identified" and the associated numerical value represents its approximate concentration.
- UJ The analyte was not detected above the reported sample quantitation limit. However, the reported quantitation limit is approximate and may or may not represent the actual limit of quantitation necessary to accurately and precisely measure the analyte in the sample.
- R The sample results are rejected due to serious deficiencies in the ability to analyze the sample and meet quality control criteria. The presence or absence of the analyte cannot be verified.

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX343

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.11

Sample wt/vol: 5.0 (g/mL) G

Lab File ID: D7840.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture: not dec. 30

Date Analyzed: 12/13/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	7.316	10	J
2.	Unknown	8.801	11	J
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1. VOA target analyte

FORM I VOA-TIC

OLM03.0

000075

AS, ESAT

1/29/97

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX351

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.05

Sample wt/vol: 5.0 (g/mL) G

Lab File ID: D7836.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture: not dec. 16

Date Analyzed: 12/13/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: ~~22~~ 21

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 75-07-0	Acetaldehyde Unknown	4.502	9	NJ
2. 110-54-3	Hexane	8.844	7	NJ
3. 108-87-2	Cyclohexane, methyl Unknown	12.262	7	NJ
4. 3073-66-3	Cyclohexane, 1,1,3-trimethyl	15.041	14	NJ
5.	Unknown	15.358	17	J
6. 14676-29-0	Heptane, 3-ethyl-2-methyl	15.517	8	NJ
7. 111-27-3	1-Hexanol	16.461	13	NJ
8.	Unknown	16.986	77	J
9.	Unknown	17.181	78	J
10. 6783-92-2	Cyclohexane, 1,1,2,3-tetramethyl	17.613	120	NJ
11. 108-67-8	Benzene, 1,3,5-trimethyl	17.879	370	NJ
12.	Unknown	18.182	120	J
13. 95-63-6	Benzene, 1,2,4-trimethyl	18.336	460	NJ
14. 99-87-6	Benzene, 1-methyl-4-(1-methyl)	18.656	200	NJ
15. 470-82-6	Eucalyptol Unknown	18.829	470	NJ
16. 135-01-3	Benzene, 1,2-diethyl Unknown	19.049	350	NJ
17. 527-84-4	Benzene, 1-methyl-2-(1-methyl)	19.381	350	NJ
18.	Unknown	19.625	55	JM
19. 1195-79-5	Bicyclo[2.2.1]heptan-2-one	19.921	120	NJ
20.	Unknown	20.236	32	J
21.	Unknown	20.414	51	J
22. 464-48-2	Bicyclo[2.2.1]heptan-2-one	20.776	120	J
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

2. common laboratory contaminant
17, 14 substituted benzene
22, 19 unknown

FORM I VOA-TIC

OLM03.0

000121

AS, ESAT

1/29/97

1E
VOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX352

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.04

Sample wt/vol: 5.0 (g/mL) G

Lab File ID: D7835.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture: not dec. 32

Date Analyzed: 12/13/96

GC Column: DB-624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

Number TICs found: 3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 110-54-3	Hexane	8.826	9	NJ
2. 80-56-8	.alpha.-Pinene	17.130	10	NJ
3. 0-00-0	Unknown	17.819	9	J
4.	Unknown	19.888	12	J
5. 91-20-3	Naphthalene	21.129	14	NJ
6.				
7.				
8.				
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

1. common laboratory contaminant

5. Semivolatile target analyte.

FORM 1 VOA-TIC

OLM03.0

000155

AS, ESAT

1/29/97

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX339

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17703.11

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: EE8137.D

Level: (low/med) LOW

Date Received: 12/13/96

% Moisture: 16 decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 12/30/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 8.7

Number TICs found: ~~11~~ 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123 42 2	2-Pentanone, 4-hydroxy 4-met	4.496	13000	NJB
2.	UNKNOWN	5.208	150	JB
3.	UNKNOWN	5.274	260	JB
4. 110 13 4	2,5-Hexanedione Unknown	5.361	94	NJ
5.	UNKNOWN	5.475	140	JB
6. 4436-75-3	3-Hexene-2,5-dione	5.562	140	NJ
7. 138 86 3	Limonene Unknown	6.504	160	NJ
8.	UNKNOWN	7.593	150	JB
9. 6938-94-9	Hexanedioic acid, bis(1-meth	10.052	96	NJ
10.	UNKNOWN	13.682	100	J
11.	UNKNOWN	14.835	92	JB
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

9. Hexanedioic acid, bis(1-methylethyl) ester
1,3,5,8,11 found in SBLKEZ.

1-4 elute before 1st semivolatile target analyte, phenol.

000326

FORM I SV-TIC

OLM03.0
AS, ESAT
1/31/97

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX340

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17703.08

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: EE8155.D

Level: (low/med) LOW

Date Received: 12/13/96

% Moisture: 15 decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 12/31/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 9.8

Number TICs found: ~~1~~ 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.364	92	J
2. 123-42-2	2-Pentanone, 4-hydroxy 4-met	4.484	11000	NJB
3. 111-76-2	Ethanol, 2-butoxy	5.110	87	NJ
4.	UNKNOWN	5.186	150	J
5. 110-13-4	2,5-Hexanedione	5.333	120	J
6.	UNKNOWN	5.453	120	J
7.	UNKNOWN	5.535	120	J
8.	UNKNOWN	5.649	85	J
9. 5989-54-8	Cyclohexene, 1-methyl 4-(1-m	6.484	130	NJ
10.	UNKNOWN	7.552	140	J
11. 6938-94-9	Hexanedioic acid, bis(1-meth	10.025	100	NJ
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

9. unknown

11. Hexanedioic acid, bis(1-methylethyl) ester

2,6,10 found in SBLKEZ

1-5 elute before 1st SVOA target analyte, phenol.

FORM I SV-TIC

JP
17/9-97
000349 C
OLM03.0
AS, ESAT
1/31/97

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX341

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.07

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: EE8119.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture: 12 decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 12/27/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.6

Number TICs found: 18 7

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.390	380	J
2. 123 42 2	2-Pentanone, 4-hydroxy 4-met	4.537	12000	JB
3.	UNKNOWN	5.229	140	JB
4.	UNKNOWN	5.501	100	JB
5.	UNKNOWN	5.578	110	JR
6. 620 14 4	Benzene, 1-ethyl-1-methyl-	5.828	120	NJ
7. 138 86 3	Limonene Unknown	6.526	270	NJ
8.	UNKNOWN	7.083	140	J
9.	UNKNOWN	7.595	120	JB
10.	UNKNOWN	8.810	85	J
11. 6938-94-9	Hexanedioic acid, bis(1-meth	10.069	110	NJ
12. 57 10 3	Hexadecanoic acid	13.514	250	NJ
13. 27554 26 3	1,2-Benzenedicarboxylic acid	16.646	270	NJ
14.	UNKNOWN	16.922	970	J
15.	UNKNOWN	16.966	250	J
16.	UNKNOWN	17.038	190	J
17.	UNKNOWN	17.115	710	JB
18.	UNKNOWN	17.198	1300	JB
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

11. Hexanedioic acid, bis(1-methylethyl) ester

12. unknown organic acid

13-18 common laboratory contaminants (phthalates)

2,3,4,9,17,18 found in SBLKEZ.

1-3 elute before 1st SVOA target analyte, phenol.

FORM I SV-TIC

000352

OLM03.0
AS, ESAT
1/31/97

Data file : EE8119.d

Matrix : SOIL

CAS #	Compound	R.T.	Estimated Conc.
1. 541-02-6	Cyclopentasiloxane, decamethyl	7.420	170
2. 629-59-4	Tetradecane unknown alkane	12.58	130
3. 629-78-7	Heptadecane unknown alkane	16.77	210

AK
1/8/97

Concentration Units: Water: UG/L Soil: UG/KG

1. Laboratory artifact (column bleed) and found in SBLKEZ.

1-8-97
K

000005

AS, ESAT
1/31/97

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX342

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.15

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: EE8131.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture: 21 decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 12/30/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 9.2

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 106

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123 42 2	2-Pentanone, 4-hydroxy 4-met	4.502	12000	NJB
2.	Unknown	5.205	150	JN
3.	Unknown	5.357	140	JN
4.	Unknown	5.477	160	JN
5. 4436-75-3	3-Hexene-2,5-dione	5.564	110	NJ
6. 611 14 3	Benzene, 1-ethyl 2-methyl	5.804	150	NJ
7.	Unknown	6.213	260	J
8. 138 86 3	Limonene Unknown	6.508	360	NJ
9. 6938-94-9	Hexanedioic acid, bis(1-meth	10.052	140	NJ
10.	Unknown	24.710	1400	J
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

6. substituted benzene

9. Hexanedioic acid, bis(1-methylethyl) ester

1,4 found in SBLKEZ

1-3 elute before 1st SVOA target analyte, phenol.

FORM I SV-TIC

000394

OLM03.0
AS, ESAT
1/31/97

Data file : EE8131.d

Matrix : SOIL

CAS #	Compound	R.T.	Estimated Conc.
1. 124-18-5	Decane	6.076	200
2.	Unknown Alkane	7.058	130
3. 541-02-6	Cyclopentasiloxane, decamethyl	7.406	170
4. 13475-75-7	Pentadecane, 8-hexyl	13.71	180
5. 112-95-8	Eicosane	14.27	450
6. 629-97-0	Docosane	14.81	740
7. 55124-79-3	Heptadecane, 9-hexyl	15.33	2200
8. 646-31-1	Tetracosane	15.82	2100
9. 7225-66-3	Tridecane, 7-hexyl	16.30	1900
10. 13287-24-6	Nonadecane, 9-methyl	16.76	1400
11. 593-45-3	Octadecane	17.20	1200
12. 544-85-4	Dotriacontane	17.67	770
13. 7225-64-1	Heptadecane, 9-octyl	18.21	1000
14. 630-06-8	Hexatriacontane	18.80	630

Concentration Units: Water: UG/L Soil: UG/KG

3. Laboratory artifact (column bleed) and found in SBLKEZ.
1, 4-14 unknown alkanes

Handwritten signature

Handwritten mark

000006

AS, ESAT

1/31/97

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX343

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.11

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: EE8121.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture: 30 decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 12/28/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 9.6

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 4

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123 42 2	2-Pentanone, 4-hydroxy 4-met	4.526	16000	NJAB
2.	UNKNOWN	5.229	170	JN
3. 110 13 4	2,5-Hexanedione	5.376	110	J
4.	UNKNOWN	5.495	150	JB
5.	UNKNOWN	5.577	130	JN
6. 620 14 4	Benzene, 1-ethyl-3-methyl-	5.828	110	NJ
7. 5989 54 8	Cyclohexene, 1-methyl-4-(1-m	6.526	290	NJ
8. 6938-94-9	Hexanedioic acid, bis(1-meth	10.064	130	NJ
9.				
10.				
11.				
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

7. unknown

8. Hexanedioic acid, bis(1-methylethyl) ester

1,4 found in SBLKEZ

1-3 elute before 1st SVOA target analyte, phenol.

FORM I SV-TIC

000429

OLM03.0
AS, ESAT
1/31/97

Data file : EE8121.d

Matrix : SOIL

CAS #	Compound	R.T.	Estimated Conc.
1. 124-18-5	Decane Unknown alkane	6.094	110
2. 541-02-6	Cyclopentasiloxane, decamethyl	7.419	210

RTH
1/2/97

Concentration Units: Water: UG/L Soil: UG/KG

2. Laboratory artifact (column bleed) and found in SBLKEZ.

1. 3. 9. 7
p
f

000434

AS, ESAT

1/31/97

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX344

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.10

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: EE8120.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture: 19 decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 12/27/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 8.7

Number TICs found: ~~13~~ 97

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123 42 2	2 Pentanone, 4 hydroxy 4 met	4.521	11000	NJAB
2.	UNKNOWN	5.228	120	JR
3.	UNKNOWN	5.294	240	JB
4. 110 13 4	2,5 Hexanedione	5.381	82	J
5.	UNKNOWN	5.501	120	JB
6. 620 14 4	Benzene, 1 ethyl 3 methyl	5.827	110	NJ
7.	UNKNOWN	6.236	91	J
8. 138 86 3	Limonene unknown	6.525	240	NJ
9.	UNKNOWN	7.081	120	J
10.	UNKNOWN	7.604	120	JB
11. 6938-94-9	Hexanedioic acid, bis(1-meth	10.065	120	NJ
12. 57-10-3	Hexadecanoic acid	13.513	120	NJ
13.	UNKNOWN	13.704	97	J
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

6. Substituted benzene

11. Hexanedioic acid, bis(1-methylethyl) ester

12. unknown organic acid

1,3,5,10 found in SBLKEZ

1-4 elute before 1st SVOA target Analyte, phenol.

000452

FORM I SV-TIC

OLM03.0
AS, ESAT
1/31/97

Data file : EE8120.d

Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1.	124-18-5	Decane Unknown alkane	6.094	85
2.	541-02-6	Cyclopentasiloxane, decamethyl	7.419	200

Concentration Units: Water: UG/L Soil: UG/KG

2. Laboratory artifact (column bleed) and found in SBLKEZ.

1-8-97
RC

000007
AS, ESAT
1/31/97

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX345

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.13

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: EE8123.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture: 15 decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 12/28/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 9.2

Number TICs found: ~~12~~ 9

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123 42 2	2 Pentanone, 4 hydroxy 4 met	4.526	8800	A NJ
2.	UNKNOWN	5.228	130	J
3.	UNKNOWN	5.495	150	J
4.	UNKNOWN	5.577	120	J
5. 622 96 8	Benzene, 1-ethyl-4-methyl-	5.822	100	NJ
6. 5989 54 8	Cyclohexene, 1 methyl 4 (1 m	6.526	240	NJ
7.	UNKNOWN	7.076	140	J
8.	UNKNOWN	7.616	200	J
9. 1526 17 6	2-Fluoro-6-nitrophenol	7.763	94	J
10. 6938-94-9	Hexanedioic acid, bis(1-meth	10.066	120	NJ
11.	UNKNOWN	11.643	84	J
12. 57 10 3	Hexadecanoic acid	13.512	92	NJ
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

6. unknown

10. Hexanedioic acid, bis(1-methylethyl) ester

12. unknown organic acid

1,3 found in SBLKEZ

1-2 elute before 1st SVOA target analyte phenol.

JP 1-16-97

000480

000481

OLM03.0

AS, ESAT

1/31/97

Data file : EE8123.d

Matrix : SOIL

ATM

CAS #	Compound	R.T.	Estimated Conc. 1/18/97
1. 124-18-5	Decane	6.094	100
2. 541-02-6	Cyclopentasiloxane, decamethyl	7.419	190
3. 112-95-8	Eicosane	16.77	350
4. 629-99-2	Pentacosane	17.22	480
5. 629-92-5	Nonadecane	17.70	430
6. 55333-99-8	Eicosane, 7 hexyl	18.23	1100

Concentration Units: Water: UG/L Soil: UG/KG

2. Laboratory artifact (column bleed) and found in SBLKEZ
1, 3-6. unknown alkanes

1-8-97
KC

000008

AB, ESAT
1/31/97

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX346

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.12

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: EE8122.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture: 20 decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 12/28/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 8.1

Number TICs found: ~~12~~ 7

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy-4-methyl-	4.538	12000	NJAB
2. 110-13-4	UNKNOWN	5.223	150	JB
3. 110-13-4	2,5-Hexanedione	5.376	100	J
4. 620-14-4	UNKNOWN	5.496	200	JB
5. 138-86-3	UNKNOWN	5.578	140	JB
6. 620-14-4	Benzene, 1-ethyl-3-methyl-	5.697	110	J
7. 138-86-3	Limonene Unknown	5.823	120	NJ
8. 138-86-3	UNKNOWN	6.521	280	NJ
9. 138-86-3	UNKNOWN	7.077	170	J
10. 1526-17-6	2-Fluoro-4-nitrophenol	7.606	160	JB
11. 6938-94-9	Hexanedioic acid, bis(1-methyl-)	7.764	83	NJ
12. 6938-94-9	Hexanedioic acid, bis(1-methyl-)	10.067	120	NJ
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

12. Hexanedioic acid, bis(1-methylethyl) ester
1,4,10 found in SBLKET
1-3 elute before 1st SVOA target analyte, phenol.

000513

FORM I SV-TIC

OLM03.0
AS, ESAT
1/31/97

Data file : EE8122.d

Matrix : SOIL

RTH

CAS #

Compound

R.T. 1/2/97 Estimated Conc.

1. 124-18-5	Decane	Unknown alkane	6.090	110
2. 541-02-6	Cyclopentasiloxane, decamethyl		7.420	200

Concentration Units: Water: UG/L Soil: UG/KG

2. Laboratory artifact (column bleed) and found in SOLKET.

1-7-93
P6

000009

AS, ESAT
1/31/97

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX347

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.14

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: EE8130.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture: 20 decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 12/30/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 9.3

Number TICs found: ~~12~~ 7

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123 42 2	2 Pentanone, 4 hydroxy 4 met	4.509	10000	NJD
2.	Unknown	5.207	190	JB
3. 110 13 4	2,5 Hexanedione	5.359	96	NJ
4.	Unknown	5.479	250	JB
5.	Unknown	5.561	130	JB
6.	Unknown	5.730	94	J
7. 611 14 3	Benzene, 1 ethyl 2 methyl	5.806	180	NJ
8. 138 86 3	Limonene Unknown	6.505	420	NJ
9.	Unknown	7.574	160	JB
10.	Unknown	9.518	99	J
11. 6938-94-9	Hexanedioic acid, bis(1-meth	10.053	140	NJ
12. 57 10 3	Hexadecanoic acid	13.498	140	NJ
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

7. substituted benzene

11. Hexanedioic acid, bis(1-methyl ethyl) ester

12 unknown organic acid

1,4,9 found in SBLKEZ

1-3 elute before 1st SVOA target analyte, phenol.

FORM I SV-TIC

000539

OLM03.0
AS, ESAT

1/31/97

Data file : EE8130.d

Matrix : SOIL

	CAS #	Compound	R.T.	Estimated Conc.
1.	124-18-5	Decane Unknown alkane	6.073	200
2.	1120-21-4	Undecane Unknown alkane	7.061	170
3.	541-02-6	Cyclopentasiloxane, decamethyl	7.405	240

Concentration Units: Water: UG/L Soil: UG/KG

3. Laboratory artifact (column bleed)
and found in SBLKEZ.

pe 1/5/97

2

000010

AS, ESAT
1/31/97

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX348

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17703.10

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: EE8136.D

Level: (low/med) LOW

Date Received: 12/13/96

% Moisture: 18 decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 12/30/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.3

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: 12/6

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	Unknown	4.349	220	J
2. 123 42 2	2 Pentanone, 4 hydroxy 4 met	4.501	13000	NJB
3.	UNKNOWN	5.209	140	NJB
4. 110 13 4	2,5 Hexanedione	5.356	89	NJ
5.	UNKNOWN	5.476	120	JB
6. 4436 75 3	3 Hexene 2,5 dione Unknown	5.557	100	NJ
7.	UNKNOWN	5.672	87	J
8. 138 86 3	Limonene Unknown	6.505	180	NJ
9.	UNKNOWN	7.061	100	J
10.	UNKNOWN	7.581	99	JB
11. 6938-94-9	Hexanedioic acid, bis(1-meth	10.049	96	NJ
12. 57 10 3	Hexadecanoic acid	13.496	140	NJ
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

11. Hexanedioic acid, bis(1-methylethyl) ester
12. unknown organic acid
2,5,10 found in SBLKEZ
1-4 elute before 1st SVOA target analyte, phenol.

FORM I SV-TIC

000564

OLM03.0
AS, ESAT
1/31/97

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX351

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.05

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: EE8117.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture: 16 decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 12/27/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 7.4

Number TICs found: 24 21

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 107-92-6	Butanoic acid	4.345	5200	NJ
2. 123-42-42	2-Pentanone, 4-hydroxy-4-methyl-	4.558	27000	A-NJ
3.	UNKNOWN	5.065	6300	J
4. 80-56-8	alpha-Pinene Unknown	5.573	6900	NJ
5.	UNKNOWN	5.835	3700	J
6. 95-36-3	1,2,4-Trimethylbenzene	6.197	5600	NJ
7. 13466-78-9	3-Carene	6.361	12000	NJ
8. 99-87-6	Benzene, 1-methyl-4-(1-methyl-4-cyclohexenyl)-	6.492	5800	NJ
9. 5989-54-8	Cyclohexene, 1-methyl-4-(1-methyl-4-cyclohexenyl)-	6.542	5400	NJ
10. 470-82-6	Eucalyptol	6.619	7200	NJ
11.	UNKNOWN AROMATIC	6.745	3200	J
12. 98-55-5	3-Cyclohexene-1-methanol, .alpha.	8.150	10000	NJ
13. 99-94-5	Benzoic acid, 4-methyl-	8.854	3300	NJ
14. 475-20-7	1,4-Methanoazulene, decahydro-	10.181	4800	NJ
15. 489-39-4	1H-Cycloprop[el]azulene, decahydro-	10.374	11000	NJ
16. 39029-41-9	Naphthalene, 1,2,3,4,4a,5,6,8a-octahydro-	10.584	4000	J
17. 21747-46-6	1H-Cycloprop[el]azulene, 1a,2a-dihydro-	10.771	7400	NJ
18. 483-76-1	Naphthalene, 1,2,3,5,6,8a-hexahydro-	10.904	5100	NJ
19. 1453-06-1	Benzenebutanoic acid, 2,5-dimethyl-	11.147	6100	J
20.	UNKNOWN	11.501	3600	J
21. 57-10-3	Hexadecanoic acid	13.602	5800	NJ
22.	UNKNOWN	15.279	3900	J
23.	UNKNOWN	15.751	5600	JB
24.	UNKNOWN	16.155	3100	J
25.				
26.				
27.				
28.				
29.				
30.				

1-3 elute before 1st SVOA target analyte, phenol

8. Benzene, methyl-(methylethyl)-

15, 14, 9. unknown

12. 3-Cyclohexene-1-methanol, .alpha., .alpha.-4-trimethyl-

000589

8, 17, 16. substituted naphthalene unknown polynuclear aromatic hydrocarbon

19. unknown

FORM I SV-TIC

21. unknown organic acid

OLM03.0

2. found in SBLKET

AS, ESAT

1/31/97

Data file : EE8117.d

Matrix : SOIL

CAS #	Compound	R.T.	Estimated Conc.
	UNKNOWN ALKANE		
124-18-5	Decane	5.742	3200
1120-21-4	Undecane	6.109	4700
112-40-3	Dodecane	7.095	8400
		8.017	4600

Concentration Units: Water: UG/L Soil: UG/KG

1-4-97

000013

AS, ESAT
1/31/97

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Lab Name: ATAS, INC.

Contract: 68-D5-0018

YX352

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.04

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: EE8116.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture: 32 decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 12/27/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.2

Number TICs found: 12

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123-42-2	2-Pentanone, 4-hydroxy 4-met	4.545	21000	NJAB
2.	UNKNOWN	5.831	2300	J
3.	UNKNOWN	6.531	2600	J
4. 470-82-6	Eucalyptol	6.597	1600	NJ
5.	UNKNOWN	6.920	2100	J
6.	UNKNOWN	7.353	2000	J
7. 98-55-5	3-Cyclohexene 1-methanol, .a	8.126	2700	NJ
8.	UNKNOWN	10.365	1800	J
9.	UNKNOWN	11.082	1100	J
10. 57-10-3	Hexadecanoic acid	13.559	10000	NJ
11. 13481-95-3	10-Octadecenoic acid, methyl	14.589	7000	NJ
12. 57-11-4	Octadecanoic acid	14.678	3500	NJ
13.	UNKNOWN	14.767	4000	J
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

11, 7. unknown

12, 10. unknown organic acid

1 found in SBLKEZ and elutes before 1st SVOA target analyte, phenol.

000692

FORM I SV-TIC

OLM03.0
AS, ESAT
1/31/97

Data file : EE8116.d

Matrix : SOIL

1/2/97

CAS #	Compound	R.T.	Estimated Conc.
124-18-5	Decane	6.098	2200
2847-72-5	Decane, 4 methyl	6.334	3700
	UNKNOWN ALKANE	6.733	1800
	UNKNOWN ALKANE	7.084	3900
544-76-3	UNKNOWN ALKANE	14.29	5000
629-97-0	Docosane	14.84	7000
638-67-5	Tricosane	15.36	9000
646-31-1	Tetracosane	15.85	9600
7225-66-3	Tridecane, 7 hexyl	16.33	10000
55124-79-3	Heptadecane, 9 hexyl	17.24	9900
13475-75-7	Pentadecane, 8 hexyl	17.72	8500
630-01-3	Hexacosane	18.25	8200
7225-64-1	Heptadecane, 9 octyl	18.85	5900
55333-99-8	Eicosane, 7 hexyl	19.54	4800
638-68-6	triacontane	20.34	3100

Unknown alkane



Unknown alkane



Concentration Units: Water: UG/L Soil: UG/KG

1-8-97 RL

000014

AS, ESAT

1/31/97

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

Lab Name: ATAS, INC.

Contract: 68-D5-0018

YX355

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17669.06

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: EE8118.D

Level: (low/med) LOW

Date Received: 12/11/96

% Moisture: 15 decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 12/27/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y pH: 8.4

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

Number TICs found: ~~11~~ 4

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1.	UNKNOWN	4.395	450	J
2. 123 42 2	2 Pentanone, 4 hydroxy 4 met	4.553	11000	A NJB
3.	UNKNOWN	5.234	140	J
4.	UNKNOWN	5.299	320	JB
5. 110 13 4	2,5 Hexanedione	5.381	87	J
6.	UNKNOWN	5.506	160	JB
7.	UNKNOWN	5.697	87	J
8. 611 14 3	Benzene, 1-ethyl-1-methyl-	5.827	100	NJ
9. 5989 54 8	Cyclohexene, 1-methyl-4-(1-m	6.531	240	NJ
10.	UNKNOWN	7.599	130	JB
11. 6938-94-9	Hexanedioic acid, bis(1-meth	10.072	120	NJ
12.	Unknown alkane	7.081	150	J
13.	Unknown alkane	11.527	130	J
14.	Unknown alkane	11.877	260	J
15.	Unknown alkane	12.528	200	J
16.	Unknown alkane	12.600	420	J
17.	Unknown alkane	13.522	220	J
18.	Unknown alkane	13.737	240	J
19.	Unknown alkane	14.293	310	J
20.	Unknown alkane	14.839	140	J
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

9. unknown

11. Hexanedioic acid, bis(1-methylethyl) ester

2,4,6,10 found in SBLKEZ.

1-5 elute before 1st SVOA target analyte, phenol.

FORM I SV-TIC

000800

OLM03.0
AS, ESAT

1/31/97

1F
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET
TENTATIVELY IDENTIFIED COMPOUNDS

EPA SAMPLE NO.

YX356

Lab Name: ATAS, INC.

Contract: 68-D5-0018

Lab Code: ATAS

Case No.: 25218

SAS No.:

SDG No.: YX341

Matrix: (soil/water) SOIL

Lab Sample ID: 17703.09

Sample wt/vol: 30.0 (g/mL) G

Lab File ID: EE8135.D

Level: (low/med) LOW

Date Received: 12/13/96

% Moisture: 15 decanted: (Y/N) N

Date Extracted: 12/16/96

Concentrated Extract Volume: 500 (uL)

Date Analyzed: 12/30/96

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) Y

pH: 8.9

Number TICs found: ~~N~~ 4

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/KG

CAS NUMBER	COMPOUND NAME	RT	EST. CONC.	Q
1. 123 42 2	2-Pentanone, 4-hydroxy 4-met	4.497	11000	NJB
2.	Unknown	5.210	140	JB
3.	Unknown	5.275	280	JB
4. 110 13 4	2,5-Hexanedione	5.362	110	NJ
5.	Unknown	5.476	160	JB
6.	Unknown	5.564	130	JB
7. 138 86 3	Limonene Unknown	6.506	110	NJ
8.	Unknown	7.589	180	JB
9. 1526 17 6	2-Fluoro-8-nitrophenol	7.747	84	NJ
10. 6938-94-9	Hexanedioic acid, bis(1-meth	10.054	120	NJ
11.	Unknown	14.836	83	JB
12.				
13.				
14.				
15.				
16.				
17.				
18.				
19.				
20.				
21.				
22.				
23.				
24.				
25.				
26.				
27.				
28.				
29.				
30.				

10. Hexanedioic acid, bis(1-methylethyl) ester
1,3,5,8,11 found in SBLKEZ.

1-4 elute before 1st SVOA target analyte, phenol.

000834

FORM I SV-TIC

OLM03.0
AS, SAT
1/31/97

TPO: [] FYI [X] Attention [X] Action

Region 9

ORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 25218 Memo #02 LABORATORY ATAS
 SDG NO. YX341 SITE NAME Victoria Golf Course
 SOW OLM03.2 REVIEW COMPLETION DATE February 10, 1997
 REVIEWER [] ESD [X] ESAT REVIEWER'S NAME Adriane Scheele
 NO. OF SAMPLES WATER 14 SOIL OTHER

	VOA	BNA	PEST	OTHER
1. HOLDING TIMES/PRESERVATION	<u>O</u>	<u>O</u>	<u> </u>	<u> </u>
2. GC-MS TUNE/GC PERFORMANCE	<u>O</u>	<u>O</u>	<u> </u>	<u> </u>
3. INITIAL CALIBRATIONS	<u>O</u>	<u>O</u>	<u> </u>	<u> </u>
4. CONTINUING CALIBRATIONS	<u>X</u>	<u>X</u>	<u> </u>	<u> </u>
5. FIELD QC	<u>X</u>	<u>X</u>	<u> </u>	<u> </u>
6. LABORATORY BLANKS	<u>X</u>	<u>X</u>	<u> </u>	<u> </u>
7. SURROGATES	<u>O</u>	<u>O</u>	<u> </u>	<u> </u>
8. MATRIX SPIKE/DUPLICATES	<u>O</u>	<u>O</u>	<u> </u>	<u> </u>
9. REGIONAL QC	<u>N/A</u>	<u>N/A</u>	<u> </u>	<u> </u>
10. INTERNAL STANDARDS	<u>O</u>	<u>Z</u>	<u> </u>	<u> </u>
11. COMPOUND IDENTIFICATION	<u>O</u>	<u>O</u>	<u> </u>	<u> </u>
12. COMPOUND QUANTITATION	<u>O</u>	<u>O</u>	<u> </u>	<u> </u>
13. SYSTEM PERFORMANCE	<u>O</u>	<u>O</u>	<u> </u>	<u> </u>
14. OVERALL ASSESSMENT	<u>X</u>	<u>Z</u>	<u> </u>	<u> </u>

O = Data have no problems or problems that do not affect data quality.
 X = Data are qualified due to minor problems.
 M = Data are qualified due to major problems.
 Z = Data are unacceptable.
 N/A = Not Applicable

TPO ACTION: Quantitation limits for several semivolatile analytes in two samples are rejected (R) due to low internal standard area counts.

TPO ATTENTION: (1) Several results are qualified as nondetected and estimated (U,J) due to contamination in method and storage blanks. (2) Several results are estimated (J) due to calibration problems. (3) Several semivolatile results in two samples are estimated (J) due to low internal standard area counts.

AREAS OF CONCERN: None.

In Reference to Case No(s) ..

25218 Memo #02

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone Record Log #1

Date of Call: January 30, 1997
Laboratory Name: American Technical & Analytical Services (ATAS)
Lab Contact: Ruseal Brewer
Region: 9
Regional Contact: Adriane Scheele, ESAT/Lockheed
Call Initiated By: Laboratory X Region

In reference to data for the following:

Sample Delivery Group (SDG) YX341 for Volatiles Analysis

Summary of Questions/Issues Discussed:

The following items were noted during the review of the data for the volatiles fraction.

1. Form 5A, page 32, incorrectly states that a heated purge was used. Please submit a corrected Form 5A.
2. The quantitation report, page 77, for sample YX343 states that acetone elutes at 7.316 minutes. Form 1E, page 75, for sample YX343 states that an unknown elutes at 7.316 minutes. The extracted ion current profiles (EICP) provided for acetone and the unknown appear to be identical. Please clarify or submit a corrected Form 1E.
3. Form 1E, page 155, for sample YX352 lists naphthalene as a tentatively identified compound (TIC) eluting at 21.129 minutes. According to Section 11.1.2.2 of Exhibit D-38/VOA of the SOW, semivolatile target analytes listed in Exhibit C are not to be reported as TICs. Please submit a corrected Form 1E.

Summary of Resolution:

- 1-3. Corrected Forms 1E and 5A were received at ESAT on February 5, 1997.

Adriane Scheele
Signature

February 10, 1997
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy

In Reference to Case No(s) .:

25218 Memo #02

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone Record Log #2

Date of Call: February 4, 1997

Laboratory Name: American Technical &
Analytical Services (ATAS)

Lab Contact: Ruseal Brewer

Region: 9

Regional Contact: Adriane Scheele, ESAT/Lockheed

Call Initiated By: Laboratory X Region

In reference to data for the following:

Sample Delivery Group (SDG) YX341 for Semivolatiles Analysis

Summary of Questions/Issues Discussed:

The following items were noted during the review of the data for the semivolatiles fraction.

1. Form 5B, page 317, indicates that decafluorotriphenylphosphine (DFTPP) was injected on December 27, 1996 at 14:00. However, the raw data provided on pages 925 through 928 indicate that DFTPP was injected on December 27, 1996 at 10:29. Also, the percent relative abundances determined using the raw data do not correspond to those listed on Form 5B. Please submit appropriate documentation.
2. A tentatively identified compound (TIC) eluting at 7.383 min. in sample YX340 is not listed on the Form 1F. An alkane report for sample YX340 was not provided either. Please provide appropriate documentation.
3. TICs eluting at 7.081, 7.425, 11.527, 11.877, 12.528, 12.600, 13.522, 13.737, 14.293, and 14.839 min. in sample YX355 are not listed on the Form 1F. An alkane report for sample YX355 was not provided either. Please provide appropriate documentation.

Summary of Resolution:

1. Raw data corresponding to the December 27, 1996, 14:00 DFTPP injection were received at ESAT on February 5, 1997.
- 2-3. Alkane reports for samples YX340 and YX355 were received at ESAT on February 6, 1997.

Adriane Scheele
Signature

February 10, 1997
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy

Contract Laboratory Program
REGION 9/LABORATORY COMMUNICATION SYSTEM
CSF COMPLETENESS EVIDENCE AUDIT PROGRAM
Telephone Communication Summary Form

AUDIT NO.: 2/97/9 LAB CONTACT: Ruseal Brewer
CASE NO.: 25218 Memo #02 LAB CODE: ATAS
SDG NO.: YW341 LAB NAME: American Analytical &
Technical Services
FILENAME: 25218M02.TCS LAB LOCATION: Maryland Heights, MO

Summary of Questions/Issues Discussed:

The following items were noted during the audit of the complete sample delivery group file (CSF).

1. Remark 6 of Form DC-1, page 1049, includes airbill 279 440 5585. Since the samples shipped to the laboratory under airbill 279 440 5585 are not included in the samples listed on the Form DC-1, the airbill number should not have been included in remark 6. Please submit a corrected Form DC-1, page 1049.
2. Please refer to Form DC-1, page 1050. Please submit a Form DC-1, page 1050, corrected for the following observations.
 - A. Remark 11 lists the time of receipt as 0845. The chain of custody forms associated with the samples listed on Form DC-1 include two times of receipts: 0845 and 1400.
 - B. In the remarks section regarding the condition of sample shipment, a 10°C temperature is recorded for all of the samples listed. However, a 5°C temperature is recorded on the chain of custody forms for samples YX325, YX333, YX339, YX340, YX348, YX356, and YX363.
3. The sample transfer section of Form DC-1, page 1050, was not completed. Please complete the sample transfer section as instructed per Section 3.19 of Exhibit B-61 of the Statement of Work (SOW) in future data package submittals.
4. Page numbers 933 through 976 are incorrectly listed for the matrix spike/matrix spike duplicate data in Section 5.d of Form DC-2-2. The auditor has manually corrected those page numbers as 957 through 976. Please note in your records.
5. Samples for this sample delivery group (SDG) were provided in three shipments (airbill numbers 279 440 5574, 279 440 5784, and 279 440 6646) as indicated on the chain of custody forms on pages 17 through 19. The auditor has manually revised Section 8, Airbills, on Form DC-2-4 to reflect three shipments. Please note in your records.

Summary of Resolution:

- 1-2. The laboratory's response is pending as of February 10, 1997.
- 3-5. No further response from the laboratory is required.

Adrian Schuck
Auditor, ESAT/Lockheed

January 30, 1997
Date of Contact

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy

Lockheed Martin Environmental Services

Environmental Services Assistance Team, Region 9
301 Howard Street, Suite 970, San Francisco, CA 94105
Phone: 415-278-0570 Fax: 415-278-0588

cc: DTSC
2/26/97

Handwritten: need 2/19/97

MEMORANDUM

TO: Rachel Loftin
Site Assessment Manager
States Planning and Assessment Office, SFD-5

THROUGH: Rose Fong *Rose*
ESAT Regional Project Officer
Quality Assurance (QA) Office, PMD-3

FROM: Jack Berges *JB*
Team Manager
Environmental Services Assistance Team (ESAT)

ESAT Contract No.: 68D60005
Work Assignment No.: 09-96-0-4
Technical Direction No.: 9604113

DATE: February 14, 1997

SUBJECT: Review of Analytical Data

Attached are comments resulting from ESAT Region 9 review of the following analytical data:

SITE: Victoria Golf Course
SITE ACCOUNT NO.: ZZ
CERCLIS I.D. NO.: CAD980818926

CASE NO.: 25218 Memo #03
SDG NO.: MYX292
LABORATORY: Analytical Resources, Inc. (ARI)
ANALYSIS: Total Metals
SAMPLE NO.: 6 Water and 14 Soil Samples (See Case Summary)
COLLECTION DATE: December 9 through 12, 1996

REVIEWER: Dina David-Bailey, ESAT/Lockheed

The comments and qualifications presented in this report have been reviewed and approved by the EPA Work Assignment Manager (WAM) for the ESAT Contract, whose signature appears above.

If there are any questions, please contact Deirdre O'Leary (ESAT/Lockheed) at (415) 278-0585, or Rose Fong (QA Office/EPA) at (415) 744-1534.

Attachment

cc: Bruce Woods, TPO USEPA Region 10

TPO: []FYI []Attention [X]Action

SAMPLING ISSUES: []Yes [X]No

Data Validation Report

Case No.: 25218 Memo #03
 Site: Victoria Golf Course
 Laboratory: Analytical Resources, Inc. (ARI)
 Reviewer: Dina David-Bailey, ESAT/Lockheed
 Date: February 14, 1997

I. Case Summary

SAMPLE INFORMATION: SAMPLE #: Water: MYX292, MYX294, and MYX297 through MYX300
 Soil: MYX308 through MYX317, MYX320, MYX321, MYX324, and MYX325

COLLECTION DATE: December 9 through 12, 1996
 SAMPLE RECEIPT DATE: December 13, 1996
 CONCENTRATION & MATRIX: Low Concentration Groundwater and Soil

FIELD QC: Field Blanks (FB): None
 Equipment Blanks (EB): MYX299, MYX300, MYX301*, and MYX302*
 (*see Additional Comments)
 Background Samples (BG): MYX294 and MYX312 through MYX315
 Duplicates (D1): MYX308 and MYX325
 (D2): MYX310 and MYX324

LABORATORY QC: Matrix Spike: MYX292 (Water) and MYX311 (Soil)
 Duplicates: MYX292 (Water) and MYX311 (Soil)
 ICP Serial Dilution: MYX292 (Water) and MYX311 (Soil)

ANALYSIS: Total Metals

<u>Analyte</u>	<u>Sample Preparation and Digestion Date</u>	<u>Analysis Date</u>
ICP Metals	December 31, 1996 and January 2, 1997	January 9, 1997
GFAA: Arsenic	December 31, 1996 and January 2, 1997	January 10 and 13, 1997
Lead	December 31, 1996 and January 2, 1997	January 10, 1997
Selenium	December 31, 1996 and January 2, 1997	January 9 and 10, 1997
Thallium	December 31, 1996 and January 2, 1997	January 9, 1997
Mercury	December 30, 1996 and January 2, 1997	January 2, 1997
Percent Solids	Not Applicable	December 31, 1996

TPO ACTION:

The results reported for antimony in soil samples MYX309 through MYX315, MYX317, MYX320, MYX321, MYX324, and MYX325 and for selenium in water samples MYX292, MYX294, MYX297, and MYX298 are considered unacceptable as less than 30% of the matrix spike was recovered. See Comment A.

TPO ATTENTION:

None.

SAMPLING ISSUES:

None.

ADDITIONAL COMMENTS:

*The results for equipment blank samples MYX301 and MYX302 are included in Case 25218 Memo #04, SDG MYX293.

The analytical results with qualifications are listed in Table 1A. The definitions of the data qualifiers used in Table 1A are listed in Table 1B. Laboratory blanks and associated samples are listed below the data qualifiers in Table 1B. This report was prepared in accordance with the EPA Contract Laboratory Program Inorganic Statement of Work (SOW), ILM04.0, and the document "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," February 1994.

II. Validation Summary

The data were evaluated based on the following parameters:

<u>Parameter</u>	<u>Acceptable</u>	<u>Comment</u>
1. Data Completeness	Yes	
2. Sample Preservation and Holding Times	Yes	
3. Calibration	Yes	I
a. Initial Calibration Verification		
b. Continuing Calibration Verification		
c. Calibration Blank		
d. CRDL Standard		
4. Blanks	Yes	
a. Laboratory Preparation Blank		
b. Field Blank		
c. Equipment Blank		
5. ICP Interference Check Sample Analysis	Yes	
6. Laboratory Control Sample Analysis	Yes	
7. Spiked Sample Analysis	No	A, B
8. Laboratory Duplicate Sample Analysis	No	D
9. Field Duplicate Sample Analysis	No	H
10. GFAA QC Analysis	No	E
a. Duplicate Injections		
b. Analytical Spikes		
c. Method of Standard Addition		
11. ICP Serial Dilution Analysis	No	F
12. Sample Quantitation	Yes	C, G
13. Sample Result Verification	Yes	

III. Validity and Comments

A. The following results are rejected because of matrix spike recovery results outside method QC limits. The results are flagged "R" in Table 1A.

- Antimony in soil samples MYX309 through MYX315, MYX317, MYX320, MYX321, MYX324, and MYX325
- Selenium in water samples MYX292, MYX294, MYX297, and MYX298

The matrix spike recovery results for antimony in QC sample MYX311 and for selenium in QC sample MYX292 did not meet the 75-125% criteria for accuracy. The percent recovery and possible percent bias for each analyte are presented below and are based on an ideal recovery of 100%.

	MYX311	MYX311
	Soil	Soil
<u>Analyte</u>	<u>% Recovery</u>	<u>% Bias</u>
Antimony	28	-72
	MYX292	MYX292
	Water	Water
<u>Analyte</u>	<u>% Recovery</u>	<u>% Bias</u>
Selenium	29	-71

The results reported for antimony and selenium in the samples listed above were below the method detection limit (MDL) and instrument detection limit (IDL), respectively, and are considered unacceptable as less than 30% of the matrix spike was recovered. The low matrix spike recovery indicates an analytical deficiency and false negatives may exist.

According to the ILM04.0 Inorganic SOW, when the pre-digestion spike recovery results for ICP analytes (except silver) fall outside the control limits of 75-125%, a post-digestion spike must be performed for those elements that do not meet the specified criteria. A post-digestion spike recovery result of 107% was obtained for antimony in QC sample MYX311. Since the post-digestion spike recovery was acceptable, the low pre-digestion spike recovery result of 28% obtained for antimony may indicate sample nonhomogeneity, poor laboratory technique or matrix effects which may interfere with accurate analysis, depressing the analytical result.

Matrix spike sample analysis provides information about the effect of the sample matrix on sample preparation and measurement methodology.

B. The following results are estimated because of matrix spike recovery results outside method QC limits. The results are flagged "J" in Table 1A.

- Antimony in soil samples MYX308 and MYX316
- Mercury in water samples MYX292, MYX294, MYX297, and MYX298
- Selenium and zinc in all of the soil samples

The matrix spike recovery results for antimony, selenium, and zinc in QC sample MYX311 and for mercury in QC sample MYX292 did not meet the 75-125% criteria for accuracy. The percent recovery and possible percent bias for each analyte are presented below and are based on an ideal recovery of 100%.

	MYX311	MYX311
	Soil	Soil
<u>Analyte</u>	<u>% Recovery</u>	<u>% Bias</u>
Antimony	28	-72
Selenium	67	-33
Zinc	260	+160
	MYX292	MYX292
	Water	Water
<u>Analyte</u>	<u>% Recovery</u>	<u>% Bias</u>
Mercury	37	-63

Results above the IDL or the MDL are considered quantitatively uncertain. The results reported for antimony in soil samples MYX308 and MYX316 may be biased low. Since the results reported for mercury in water samples MYX292, MYX294, MYX297, and MYX298 and for selenium in all of the soil samples are nondetected, false negatives may exist. The results reported for zinc in all of the soil samples may be biased high.

According to the ILM04.0 Inorganic SOW, when the pre-digestion spike recovery results for ICP analytes (except silver) fall outside the control limits of 75-125%, a post-digestion spike must be performed for those elements that do not meet the specified criteria. Post-digestion spike recovery results of 107% for antimony and 94% for zinc were obtained in QC sample MYX311. Since the post-digestion spike recoveries are acceptable, the low pre-digestion spike recovery of 28% obtained for antimony and the high pre-digestion spike recovery of 260% obtained for zinc may indicate sample nonhomogeneity, poor laboratory technique or matrix effects which may interfere with accurate analysis, enhancing or depressing the analytical result.

A 74% recovery was obtained for arsenic in the matrix spike analysis of QC sample MYX311. This percent recovery, though marginally below the 75-125% criteria for accuracy, is not expected to significantly affect the results reported for arsenic in any of the soil samples.

- C. The following results are estimated and are flagged "J" in Table 1A.
- All results above the instrument detection limit or the method detection limit but below the contract required detection limit (denoted with an "L" qualifier)

Results above the IDL for waters or the MDL for soils but below the contract required detection limit (CRDL) are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

- D. The following results are estimated because of laboratory duplicate results outside method QC limits. The results are flagged "J" in Table 1A.

- Barium in all of the soil samples

Laboratory duplicate results did not meet the ± 35 relative percent difference (RPD) and $\pm 2X$ CRDL criteria for precision as listed below.

	MYX311
	Soil
<u>Analyte</u>	<u>RPD</u>
Barium	70

The results reported for barium in all of the soil samples are considered quantitatively uncertain.

Duplicate analyses demonstrate the analytical precision obtained for each sample matrix. The imprecision between duplicate results may be due to sample nonhomogeneity, poor laboratory technique, or method defects.

E. The following results are estimated because of GFAA analytical spike recovery results outside method QC limits. The results are flagged "J" in Table 1A.

- Selenium in samples MYX294, MYX297, MYX308 through MYX317, MYX320, and MYX321
- Thallium in samples MYX298, MYX313, and MYX315

The analytical spike recovery results for selenium and thallium in the samples listed above did not meet the 85-115% criteria for accuracy. The percent recovery and possible percent bias for each analyte are presented below and are based on an ideal recovery of 100%.

<u>Analyte</u>	<u>Sample Number</u>	<u>% Recovery</u>	<u>% Bias</u>
Selenium	MYX294	83	-17
	MYX297	65	-35
	MYX308	83	-17
	MYX309	83	-17
	MYX310	81	-19
	MYX311	65	-35
	MYX312	84	-16
	MYX313	40	-60
	MYX314	82	-18
	MYX315	58	-42
	MYX316	81	-19
	MYX317	80	-20
	MYX320	70	-30
	MYX321	50	-50
Thallium	MYX298	80	-20
	MYX313	56	-44
	MYX315	60	-40

The post-digestion spike recovery results for selenium and thallium, as noted above, show an analytical deficiency. Since the results reported for selenium and thallium in the samples listed above are nondetected, false negatives may exist.

The post-digestion analytical spike recovery results of 58% in duplicate sample MYX311 for selenium and 42% in duplicate sample MYX311 for thallium also did not meet the 85-115% criteria for accuracy.

It should be noted that the results for selenium in samples MYX294 and MYX297 were previously rejected. Please refer to Comment A.

Arsenic, lead, selenium and thallium were analyzed by the graphite furnace atomic absorption (GFAA) technique, which requires that a post-digestion analytical spike be performed for each sample to establish the accuracy of the individual analytical determination.

F. The following results are estimated because of ICP serial dilution results outside method QC limits. The results are flagged "J" in Table 1A.

- Copper in all of the soil samples

The percent difference of the ICP serial dilution analysis of sample MYX311 did not meet the 10% criterion for the analyte shown below.

	MYX311
	Soil
<u>Analyte</u>	<u>% Difference</u>
Copper	13

The results reported for copper in all of the soil samples are considered quantitatively uncertain. Chemical and physical interferences may exist due to sample matrix effects.

A five fold dilution of the laboratory QC sample is performed in association with the ICP procedure to indicate whether interference exists due to sample matrix effects. If the analyte concentration is sufficiently high (minimally a factor of 50 above the IDL in the original sample), the five fold serial dilution must agree within 10% of the original results after correction for dilution.

G. The following samples were diluted and the quantitation limits for the analytes shown below have been raised.

- Lead in sample MYX298
- Selenium in samples MYX292, MYX298, MYX308 through MYX310, MYX312, MYX314, MYX316, MYX317, MYX324, and MYX325
- Thallium in samples MYX308 through MYX312, MYX314, MYX316, MYX317, MYX320, MYX321, MYX324, and MYX325

Sample MYX298 for lead was reanalyzed at a five-fold dilution because of a high background obtained in the initial undiluted analysis. The samples listed above for selenium and thallium were diluted by a factor of five because the spike recovery obtained in the original analysis was less than 40%. The low percent recovery obtained for selenium and thallium may be due to chemical or physical interferences. Dilution of the samples is performed to reduce any matrix interferences which may be present and which may be responsible for the low analytical spike recovery. The quantitation limits reported in Table 1A for lead, selenium, and thallium in the samples listed above were raised by the dilution factor.

Note that the results for arsenic in the diluted analyses of samples MYX310 and MYX314 are between the MDL and the CRDL. Therefore these results, which are greater than the CRDL when multiplied by the dilution factor, have been flagged "L" (see Comment C).

It should be noted that the results for selenium in samples MYX292 and MYX298 were previously rejected. Please refer to Comment A.

Analytical spikes are post-digestion spikes prepared prior to analysis by adding a known quantity of the analyte to an aliquot of the digested sample. Arsenic, lead, selenium, and thallium were analyzed by the GFAA technique, which requires the analysis of analytical spikes.

- H. In the analysis of the field duplicate pairs, the following RPDs were obtained for the analytes listed below.

	MYX310 D2
	MYX324 D2
<u>Analyte</u>	<u>RPD</u>
Arsenic	122
Calcium	72
Copper	167
Lead	182
Zinc	165

The results are expected to vary more than laboratory duplicates (± 35 RPD or $\pm 2X$ CRDL criteria for precision) since sampling variability is included in the measurement. The effect on the quality of the data is not known.

The analysis of field duplicate samples is a measure of both field and analytical precision. The imprecision in the results of the analysis of the field duplicate pair may be due to the sample matrix, sample nonhomogeneity, poor sampling or laboratory technique, or method defects.

- I. A low recovery of 60% was reported for mercury in the analysis of the CRDL standard (CRA) for soils. While there are no criteria established for CRDL standard recoveries, low recoveries indicate uncertainty for sample results near the CRDL. The low CRA recovery may indicate low bias and possible false negatives for mercury results in all of the soil samples except sample MYX320.

ANALYTICAL RESULTS

Page 1 of 5

Case No.: 25218 Memo #03

TABLE 1A

Site: Victoria Golf Course

Lab.: Analytical Resources, Inc. (ARI)

Analysis Type: Low Concentration Groundwater

Reviewer: Dina David-Bailey, ESAT/Lockheed

Samples for Total Metals

Date: February 14, 1997

Concentration in µg/L

Station Location	GW-2-1			GW-4-1			GW-9-1			GW-10-1			GW-11-1			GW-12-1			Lab Blank 1		
Sample I.D.	MYX292			MYX294 BG			MYX297			MYX298			MYX299 EB			MYX300 EB					
Date of Collection	12/9/96			12/12/96			12/10/96			12/11/96			12/9/96			12/10/96					
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	20.0 U			82.0 L J C			20.0 U			20.0 U			34.9 L J C			20.0 U			20.0 U		
Antimony	50.0 U			50.0 U			50.0 U			50.0 U			50.0 U			50.0 U			50.0 U		
Arsenic	6.6 L J C			10.4			6.8 L J C			1.2 L J C			1.0 U			1.0 U			1.0 U		
Barium	95.7 L J C			103 L J C			60.2 L J C			34.7 L J C			1.0 U			1.0 U			1.0 U		
Beryllium	1.0 U			1.0 U			1.0 U			1.0 U			1.0 U			1.0 U			1.0 U		
Cadmium	2.0 U			2.0 U			2.0 U			2.0 U			2.0 U			2.0 U			2.0 U		
Calcium	1020000			46300			467000			1100000			211 L J C			26.8 L J C			20.0 U		
Chromium	5.0 U			5.0 U			5.0 U			5.0 U			5.0 U			5.0 U			5.0 U		
Cobalt	3.0 U			3.0 U			3.0 U			3.0 U			3.0 U			3.0 U			3.0 U		
Copper	2.0 U			2.0 U			2.0 U			2.0 U			7.0 L J C			2.0 U			2.0 U		
Iron	1820			56.5 L J C			20.0 U			18200			22.7 L J C			20.0 U			20.0 U		
Lead	1.0 U			1.0 U			1.0 U			5.0 U G			1.0 U			1.0 U			1.0 U		
Magnesium	260000			15900			119000			327000			67.0 L J C			20.0 U			20.0 U		
Manganese	2690			154			676			1970			1.0 U			1.0 U			1.0 U		
Mercury	0.10 U J B			0.10 U J B			0.10 U J B			0.10 U J B			0.10 U			0.10 U			0.10 U		
Nickel	10.0 U			10.0 U			10.0 U			10.0 U			10.0 U			10.0 U			10.0 U		
Potassium	18300			6050			10200			21000			400 U			400 U			400 U		
Selenium	5.0 U R AG			1.0 U R AE			1.0 U R AE			5.0 U R AG			1.0 U			1.0 U			1.0 U		
Silver	3.0 U			3.0 U			3.0 U			3.0 U			3.0 U			3.0 U			3.0 U		
Sodium	580000			54800			227000			1380000			432 L J C			50.0 U			50.0 U		
Thallium	1.0 U			1.0 U			1.0 U			1.0 U J E			1.0 U			1.0 U			1.0 U		
Vanadium	2.0 U			2.0 U			7.0 L J C			2.0 U			2.3 L J C			2.3 L J C			2.0 U		
Zinc	98.5			4.0 U			53.1			64.6			4.0 U			4.0 U			4.0 U		

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com.-Comments. Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit.

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample

CRDL-Contract Required Detection Limit

Case No.: 25218 Memo #03

Site: Victoria Golf Course

Lab.: Analytical Resources, Inc. (ARI)

Reviewer: Dina David-Bailey, ESAT/Lockheed

Date: February 14, 1997

Analysis Type: Low Concentration Groundwater
Samples for Total Metals

Concentration in µg/L

[illegible]

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com.-Comments. Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit.

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample

CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS

Page 3 of 5

Case No.: 25218 Memo #03

TABLE 1A

Site: Victoria Golf Course

Lab.: Analytical Resources, Inc. (ARI)

Analysis Type: Low Concentration Soil

Reviewer: Dina David-Bailey, ESAT/Lockheed

Samples for Total Metals

Date: February 14, 1997

Concentration in mg/Kg

Station Location	SS-1-10			SS-1-20			SS-2-10			SS-2-20			SS-3-10			SS-3-20			SS-4-10		
Sample I.D.	MYX308 D1			MYX309			MYX310 D2			MYX311			MYX312 BG			MYX313 BG			MYX314 BG		
Date of Collection	12/10/96			12/10/96			12/10/96			12/10/96			12/10/96			12/10/96			12/10/96		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	28300			25400			25700			14100			32500			15700			22800		
Antimony	13.6 L J	BC		11.8 U R	A		11.2 U R	A		12.5 U R	A		12.3 U R	A		11.4 U R	A		11.1 U R	A	
Arsenic	5.0			5.5			3.2 L J	CGH		4.5			5.9			5.9			4.4 L J	CG	
Barium	158 J	D		202 J	D		212 J	D		233 J	D		184 J	D		115 J	D		127 J	D	
Beryllium	0.83 L J	C		0.66 L J	C		0.70 L J	C		0.40 L J	C		0.87 L J	C		0.47 L J	C		0.57 L J	C	
Cadmium	0.47 U			0.63 L J	C		0.48 L J	C		1.0 L J	C		0.51 L J	C		0.46 U			0.50 L J	C	
Calcium	7660			12400			9160	H		9090			12200			4090			14500		
Chromium	33.7			34.8			30.7			29.5			40.5			37.7			27.3		
Cobalt	15.9			14.4			12.6			7.9 L J	C		16.5			8.9 L J	C		11.4		
Copper	36.8 J	F		34.2 J	F		31.1 J	FH		33.1 J	F		35.5 J	F		22.4 J	F		26.7 J	F	
Iron	36800			32500			31100			20400			39000			23300			28100		
Lead	10.7			11.2			10.8	H		41.8			11.3			6.0			7.7		
Magnesium	11100			10800			9820			5770			13600			6540			10000		
Manganese	617			613			486			221			496			272			438		
Mercury	0.06 U	I		0.06 L J	CI		0.06 U	I		0.20	I		0.06 U	I		0.15	I		0.06 U	I	
Nickel	28.2			24.2			20.7			13.3			29.5			17.4			18.1		
Potassium	4820			3980			5260			4170			5190			2840			5230		
Selenium	1.2 U J	BEG		1.2 U J	BEG		1.1 U J	BEG		0.25 U J	BE		1.2 U J	BEG		0.25 U J	BE		1.1 U J	BEG	
Silver	0.70 U			0.71 U			0.67 U			0.75 U			0.74 U			0.68 U			0.67 U		
Sodium	2690			1990			2250			1130 L J	C		4120			847 L J	C		875 L J	C	
Thallium	1.2 U	G		1.2 U	G		1.1 U	G		1.3 U	G		1.2 U	G		0.25 U J	E		1.1 U	G	
Vanadium	73.8			62.7			60.5			41.7			75.8			49.8			59.3		
Zinc	88.2 J	B		82.6 J	B		76.6 J	BH		179 J	B		85.2 J	B		50.9 J	B		71.9 J	B	
Percent Solids	84.1 %			84.1 %			85.7 %			79.0 %			81.5 %			80.6 %			85.9 %		

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com.-Comments. Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit. MDL-Method Detection Limit.

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample

CRDL-Contract Required Detection Limit

ANALYTICAL RESULTS

Page 4 of 5

Case No.: 25218 Memo #03

TABLE 1A

Site: Victoria Golf Course

Lab.: Analytical Resources, Inc. (ARI)

Analysis Type: Low Concentration Soil

Reviewer: Dina David-Bailey, ESAT/Lockheed

Samples for Total Metals

Date: February 14, 1997

Concentration in mg/Kg

Station Location	SS-4-20			SS-5-10			SS-5-20			SS-7-10			SS-7-20			SS-9-10			SS-10-10		
Sample I.D.	MYX315 BG			MYX316			MYX317			MYX320			MYX321			MYX324 D2			MYX325 D1		
Date of Collection	12/10/96			12/10/96			12/10/96			12/10/96			12/9/96			12/10/96			12/10/96		
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	12100			26800			19700			10800			16400			24400			31400		
Antimony	12.3 U R A			16.6 J B			12.1 U R A			13.8 U R A			14.0 U R A			11.0 U R A			11.6 U R A		
Arsenic	4.0			9.2			15.6			6.5			7.3			13.3		H	5.5		
Barium	112 J D			242 J D			167 J D			821 J D			341 J D			250 J D			200 J D		
Beryllium	0.32 L J C			0.73 L J C			0.61 L J C			0.65 L J C			0.36 L J C			0.64 L J C			0.89 L J C		
Cadmium	0.49 U			0.99 L J C			0.76 L J C			6.2			2.0			1.5			0.46 U		
Calcium	5590			24600			97400			10600			23700			19500		H	9880		
Chromium	16.3			33.0			30.9			912			48.0			33.3			39.1		
Cobalt	8.3 L J C			12.5			11.2 L J C			17.2			13.1 L J C			12.6			15.4		
Copper	16.9 J F			36.6 J F			30.3 J F			376 J F			176 J F			345 J FH			38.1 J F		
Iron	19200			34000			26000			35800			27200			28700			38200		
Lead	5.1			9.5			9.8			942			245			233		H	10.6		
Magnesium	6760			12500			15200			4720			6440			9280			11400		
Manganese	478			581			980			371			368			584			613		
Mercury	0.05 U I			0.06 U I			0.06 U I			0.72			0.31		I	0.14		I	0.05 U I		
Nickel	13.9			21.8			26.9			86.8			38.8			29.0			23.8		
Potassium	2780			6710			2350			3980			4160			5200			5060		
Selenium	0.23 U J BE			1.1 U J BEG			1.2 U J BEG			0.28 U J BE			0.28 U J BE			1.1 U J BG			1.1 U J BG		
Silver	0.74 U			0.71 U			0.72 U			1.8 L J C			0.86 L J C			0.66 U			0.70 U		
Sodium	356 L J C			3010			3180			1370 L J C			1470			763 L J C			2730		
Thallium	0.23 U J E			1.1 U G			1.2 U G			1.4 U G			1.4 U G			1.1 U G			1.1 U G		
Vanadium	38.0			73.5			56.3			179			50.0			59.0			78.8		
Zinc	45.8 J B			85.3 J B			61.2 J B			1140 J B			832 J B			802 J BH			97.7 J B		
Percent Solids	81.5 %			83.1 %			80.5 %			71.5 %			70.0 %			87.9 %			84.4 %		

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com.-Comments. Refer to the Corresponding Section in the Narrative for each letter.

MDL-Method Detection Limit.

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample

CRDL-Contract Required Detection Limit

TABLE 1A

Analysis Type: Low Concentration Soil
Samples for Total Metals

Samples for Total Metals

Concentration in mg/Kg

Date: February 14, 1997

Val-Validity. Refer to Data Qualifiers in Table 1B.	D1, D2, etc. -Field Duplicate Pairs
Com.-Comments. Refer to the Corresponding Section in the Narrative for each letter.	FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample
MDL-Method Detection Limit.	CRDL-Contract Required Detection Limit
N/A-Not Applicable, NA-Not Analyzed	

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR INORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared in accordance with the document "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," February, 1994.

- U The analyte was analyzed for, but was not detected above the level of the reported value. The reported value is either the sample quantitation limit or the sample detection limit for all the analytes except Cyanide (CN) and Mercury (Hg). For CN and Hg, the reported value is the Contract Required Detection Limit (CRDL).
- L Indicates results which fall between the sample detection limit and the CRDL. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
- J The associated value is an estimated quantity. The analyte was analyzed for and was positively identified, but the reported numerical value may not be consistent with the amount actually present in the environmental sample.
- R The data are unusable. The analyte was analyzed for, but the presence or absence of the analyte can not be verified.
- UJ A combination of the "U" and the "J" qualifier. The analyte was analyzed for but was not detected. The reported value is an estimate and may be inaccurate or imprecise.

Laboratory blanks and associated samples

Lab Blank 1: MYX292, MYX294, and MYX297 through MYX300
(Waters)

Lab Blank 2: MYX308 through MYX317, MYX320, MYX321, MYX324, and MYX325
(Soils)

TPO: [] FYI [] Attention [X] Action

Region 9

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 25218 Memo #03 LABORATORY ARI
 SDG NO. MYX292 SITE NAME Victoria Golf Course
 SOW NO. ILM04.0 REVIEW COMPLETION DATE February 14, 1997
 REVIEWER [] ESD [X] ESAT REVIEWER'S NAME Dina David-Bailey
 NO. OF SAMPLES: WATER 6 SOIL 14 OTHER

	ICP	GFAA	Hg	Cyanide
1. PRESERVATION AND HOLDING TIMES	<u>0</u>	<u>0</u>	<u>0</u>	<u> </u>
2. CALIBRATION	<u>0</u>	<u>0</u>	<u>0</u>	<u> </u>
3. BLANKS	<u>0</u>	<u>0</u>	<u>0</u>	<u> </u>
4. ICP INTERFERENCE CHECK SAMPLE (ICS)	<u>0</u>			
5. LABORATORY CONTROL SAMPLE (LCS)	<u>0</u>	<u>0</u>	<u>0</u>	<u> </u>
6. DUPLICATE ANALYSIS	<u>X</u>	<u>0</u>	<u>0</u>	<u> </u>
7. MATRIX SPIKE ANALYSIS	<u>Z</u>	<u>Z</u>	<u>X</u>	<u> </u>
8. METHOD OF STANDARD ADDITION (MSA)		<u>0</u>		
9. ICP SERIAL DILUTION	<u>X</u>			
10. SAMPLE QUANTITATION	<u>0</u>	<u>0</u>	<u>0</u>	<u> </u>
11. SAMPLE VERIFICATION	<u>0</u>	<u>0</u>	<u>0</u>	<u> </u>
12. GFAA ANALYTICAL SPIKE		<u>M</u>		
13. OVERALL ASSESSMENT	<u>Z</u>	<u>Z</u>	<u>X</u>	<u> </u>

O = Data have no problems or problems that do not affect data quality.
 X = Data are qualified due to minor problems.
 M = Data are qualified due to major problems.
 Z = Data are unacceptable.
 N/A = Not Applicable.

TPO ACTION: The results reported for antimony in soil samples MYX309 through MYX315, MYX317, MYX320, MYX321, MYX324, and MYX325 and for selenium in water samples MYX292, MYX294, MYX297, and MYX298 are considered unacceptable as less than 30% of the matrix spike was recovered.

TPO ATTENTION: None.

AREAS OF CONCERN: A low recovery of 60% was reported for mercury in the analysis of the CRDL standard (CRA) for soils. While there are no criteria established for CRDL standard recoveries, low recoveries indicate uncertainty for sample results near the CRDL. The low CRA recovery may indicate low bias and possible false negatives for mercury results in all of the soil samples except sample MYX320.

In Reference to Case No(s) ..

25218 Memo #03

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone Record Log

Date of Call: February 5, 1997
Laboratory Name: Analytical Resources, Inc. (ARI)
Lab Contact: Jeff J. Reitan
Region: 9
Regional Contact: Dina David-Bailey, ESAT/Lockheed
Call Initiated By: Laboratory X Region

In reference to data for the following sample delivery group(s):
SDG No. MYX292 (Groundwater and Soil Samples for Total Metals)

Summary of Questions/Issues Discussed:

1. The results reported on Form 1 (page 7), Form 6 (pg. 62), and Form 9 (page 68) for sodium in samples MYX292 and MYX292L appear to be incorrect. Pages 220 and 221 of the raw data indicate a result of 580,000 ug/L for sample MYX292 and a result of 555,300 ug/L for sample MYX292L. Please clarify.
2. An incorrectly calculated MSA result for arsenic in sample MYX312 was reported on Form 1 (page 17). The correct result should be 5.7 mg/Kg, not 5.9 mg/Kg as reported. Please clarify.
3. The benchsheet for %Solids determination (page 467) shows a tare + dry sample weight of 8.388 grams for sample MYX325; however, this weight was transcribed incorrectly as 8.338 grams on the calculation sheet (page 466). An 84.4% solids was obtained by the data validator based on the benchsheet data, as opposed to 83.8% reported on Form 1 (page 26) for sample MYX325. Please clarify.
4. The QC results reported on the forms (pages 34-40, etc.) for arsenic appear to be from a different analysis, not associated with this SDG. The QC results obtained for arsenic from the 1-13-97 MSA analyses do not match the reported QC results. Please clarify.
5.
 - (a) The ICP runlog does not include the water samples.
 - (b) Data for sample MYX292L were reported but this sample was not marked with an "X" on page 78 of the ICP runlog.
 - (c) Please explain the large time gap between a CCB (run time: 1925) and sample MYX298 (run time: 1941) analyzed by ICP.
6. Please explain why most soil samples were initially run diluted for lead by GFAA. Exhibit A, Section II.A.3 of the ILM04.0 SOW specifies that samples must be initially run undiluted.

In Reference to Case No(s) ..

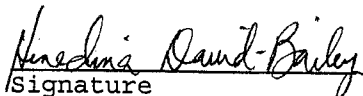
25218 Memo #03

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone Record Log

Summary of Resolution:

1. The laboratory corrected and resubmitted Forms 1, 6, and 9 for sodium results in samples MYX292 and MYX292L.
2. The laboratory corrected and resubmitted Form 1 for arsenic result in sample MYX312.
3. The laboratory corrected the percent solids for sample MYX325 based on the benchsheet data and resubmitted the Form 1. The corrected percent solids (84.4) was used to recalculate the results for all of the analytes in sample MYX325.
4. The laboratory corrected the ICV/CCV results initially reported for arsenic on the Form 2As. The ICV/CCV results for arsenic now match the raw data.
5.
 - (a) The laboratory provided the missing runlog.
 - (b) Page 78 (runlog) was corrected for sample MYX292L.
 - (c) The analyst was preparing dilutions, resulting in a large time gap between a CCB and sample MYX298.
6. The laboratory states that all dilutions performed for lead by GFAA were based on the ICP data (Exhibit D).


Signature

2-14-97
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy

Contract Laboratory Program
REGION 9/LABORATORY COMMUNICATION SYSTEM
CSF COMPLETENESS EVIDENCE AUDIT PROGRAM
Telephone Communication Summary Form

AUDIT NO.: 2/97/12 LAB CONTACT: Jeff J. Reitan
CASE NO.: 25218 Memo #03 LAB CODE: ARI
SDG NO.: MYX292 LAB NAME: Analytical Resources, Inc.
FILENAME: 25218M03.TCS LAB LOCATION: Seattle, WA

Summary of Questions/Issues Discussed:

The following items were noted during the case audit of Case 25218/SDG MYX292. Please respond within 10 calendar days of receipt of this Telephone Communication Summary Form by submitting copies of the corrected forms or documenting the corrections in a memorandum or amended case narrative.

1. The Lab column was not checked for the presence of Item 1, Inventory Sheet (DC-2).
2. The page numbers for Item 3, Inorganic Analysis Data Sheet (Form I-IN), should range from page 0006 to 0026 instead of page 0006 to 0025. Consequently, the beginning page number for Item 4, Initial & Continuing Calibration Verification (Form IIA-IN), should be page 0027 instead of page 0026.
3. The Chain-of-Custody Records entry in Item 27, EPA Shipping/Receiving Documents, should list the end page as 0474 instead of page 0473.
4. A raw data sheet in between page 384 and 385 was not paginated. The auditor has designated this page as page 384A. Please correct your copy of the data package.

Summary of Resolution:

- 1.-3. The laboratory corrected and resubmitted a copy of the Form DC-2.
4. The laboratory assigned a pagination number 384A.

Neredina Dault-Bailey for MW
Auditor, ESAT/Lockheed

January 30, 1997
Date of Contact

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy

Lockheed Martin Environmental Services

Environmental Services Assistance Team, Region 9
301 Howard Street, Suite 970, San Francisco, CA 94105
Phone: 415-278-0570 Fax: 415-278-0588

cc: PTSC
2/26/97

MEMORANDUM

TO: Rachel Loftin
Site Assessment Manager
States Planning and Assessment Office, SFD-5

THROUGH: Rose Fong
ESAT Regional Project Officer
Quality Assurance (QA) Office, PMD-3

FROM: Jack Berges
Team Manager
Environmental Services Assistance Team (ESAT)

ESAT Contract No.: 68D60005
Work Assignment No.: 09-96-0-4
Technical Direction No.: 9604113

DATE: February 14, 1997

SUBJECT: Review of Analytical Data

Attached are comments resulting from ESAT Region 9 review of the following analytical data:

SITE: Victoria Golf Course
SITE ACCOUNT NO.: ZZ
CERCLIS I.D. NO.: CAD980818926

CASE NO.: 25218 Memo #04
SDG NO.: MYX293
LABORATORY: Analytical Resources, Inc. (ARI)
ANALYSIS: Total Metals
SAMPLE NO.: 6 Water Samples (See Case Summary)
COLLECTION DATE: December 10, 11, and 13, 1996

REVIEWER: Dina David-Bailey, ESAT/Lockheed

The comments and qualifications presented in this report have been reviewed and approved by the EPA Work Assignment Manager (WAM) for the ESAT Contract, whose signature appears above.

If there are any questions, please contact Deirdre O'Leary (ESAT/Lockheed) at (415) 278-0585, or Rose Fong (QA Office/EPA) at (415) 744-1534.

Attachment

cc: Bruce Woods, TPO USEPA Region 10

TPO: [X]FYI []Attention []Action

SAMPLING ISSUES: [X]Yes []No

Data Validation Report

Case No.: 25218 Memo #04
 Site: Victoria Golf Course
 Laboratory: Analytical Resources, Inc. (ARI)
 Reviewer: Dina David-Bailey, ESAT/Lockheed
 Date: February 14, 1997

I. Case Summary

SAMPLE INFORMATION: SAMPLE #: MYX291, MYX293, MYX295, MYX301, MYX302, and MYX334

COLLECTION DATE: December 10, 11, and 13, 1996
 SAMPLE RECEIPT DATE: December 13 and 14, 1996
 CONCENTRATION & MATRIX: Low Concentration Groundwater

FIELD QC: Field Blanks (FB): None
 Equipment Blanks (EB): MYX300*, MYX301, and MYX302
 (*see Additional Comments)
 Background Samples (BG): MYX293
 Duplicates (D1): MYX295 and MYX334

LABORATORY QC: Matrix Spike: MYX293
 Duplicates: MYX293
 ICP Serial Dilution: MYX293

ANALYSIS: Total Metals

<u>Analyte</u>	<u>Sample Preparation and Digestion Date</u>	<u>Analysis Date</u>
ICP Metals	January 3, 1997	January 10, 1997
GFAA: Arsenic	January 3, 1997	January 10, 1997
Lead	January 3, 1997	January 10, 1997
Selenium	January 3, 1997	January 9 through 10, 1997
Thallium	January 3, 1997	January 9, 1997
Mercury	January 4, 1997	January 6, 1997

TPO ACTION:

None.

TPO ATTENTION:

None.

SAMPLING ISSUES:

The laboratory case narrative states that sample MYX291 was received unpreserved. All of the analyte results in sample MYX291 are estimated (J) due to inadequate sample preservation.

ADDITIONAL COMMENTS:

*The results for equipment blank sample MYX300 are included in Case 25218 Memo #03, sample delivery group (SDG) MYX292.

ADDITIONAL COMMENTS: (continued)

The sampler designated one laboratory quality control (QC) sample for each of the matrices in this case. This case contains 14 soil samples and 12 water samples. Since the laboratory separated the water samples into two different SDGs, another QC sample (MYX293) was selected by the laboratory for this SDG. However, note that sample MYX293 is a background sample. A QC sample should be an investigative sample collected from sampling points which are known or suspected to be contaminated.

The analytical results with qualifications are listed in Table 1A. The definitions of the data qualifiers used in Table 1A are listed in Table 1B. This report was prepared in accordance with the EPA Contract Laboratory Program Inorganic Statement of Work (SOW), ILM04.0, and the document "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," February 1994.

II. Validation Summary

The data were evaluated based on the following parameters:

<u>Parameter</u>	<u>Acceptable</u>	<u>Comment</u>
1. Data Completeness	Yes	
2. Sample Preservation and Holding Times	No	B
3. Calibration	Yes	
a. Initial Calibration Verification		
b. Continuing Calibration Verification		
c. Calibration Blank		
d. CRDL Standard		
4. Blanks	Yes	
a. Laboratory Preparation Blank		
b. Field Blank		
c. Equipment Blank		
5. ICP Interference Check Sample Analysis	Yes	
6. Laboratory Control Sample Analysis	Yes	
7. Spiked Sample Analysis	No	C
8. Laboratory Duplicate Sample Analysis	Yes	
9. Field Duplicate Sample Analysis	Yes	
10. GFAA QC Analysis	No	D
a. Duplicate Injections		
b. Analytical Spikes		
c. Method of Standard Addition		
11. ICP Serial Dilution Analysis	Yes	
12. Sample Quantitation	Yes	A
13. Sample Result Verification	Yes	

III. Validity and Comments

- A. The following results are estimated and are flagged "J" in Table 1A.
- All results above the instrument detection limit but below the contract required detection limit (denoted with an "L" qualifier)

Results above the instrument detection limit (IDL) but below the contract required detection limit (CRDL) are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.

- B. The following results are estimated due to inadequate sample preservation. The results are flagged "J" in Table 1A.

- All of the analytes in sample MYX291

Sample MYX291 did not meet the 40 CFR 136 (Clean Water Act) sample preservation criteria. The laboratory case narrative states that sample MYX291 was received unpreserved. The laboratory indicated that the measured pH in sample MYX291 was not recorded. (See the telephone record log for more information.)

Sample results may be biased low, and where nondetected, false negatives may exist.

The 40 CFR 136 (Clean Water Act) technical holding time criteria were not exceeded for any of the analytes in any of the samples.

- C. The following results are estimated because of matrix spike recovery results outside method QC limits. The results are flagged "J" in Table 1A.

- Selenium in samples MYX291, MYX293, MYX295, and MYX334

The matrix spike recovery result for selenium in QC sample MYX293 did not meet the 75-125% criteria for accuracy. The percent recovery and possible percent bias for selenium are presented below and are based on an ideal recovery of 100%.

<u>Analyte</u>	<u>MYX293</u> <u>% Recovery</u>	<u>MYX293</u> <u>% Bias</u>
Selenium	59	-41

Since the results reported for selenium in the samples listed above are nondetected, false negatives may exist.

Matrix spike sample analysis provides information about the effect of the sample matrix on sample preparation and measurement methodology.

- D. The following results are estimated because of GFAA analytical spike recovery results outside method QC limits. The results are flagged "J" in Table 1A.

- Lead in samples MYX293, MYX301, and MYX302
- Selenium in sample MYX293

The analytical spike recovery results for lead and selenium in the samples listed above did not meet the 85-115% criteria for accuracy. The percent recovery and possible percent bias for each analyte are presented below and are based on an ideal recovery of 100%.

<u>Analyte</u>	<u>Sample Number</u>	<u>% Recovery</u>	<u>% Bias</u>
Lead	MYX293	84	-16
	MYX301	84	-16
	MYX302	74	-26
Selenium	MYX293	53	-47

The post-digestion spike recovery results for lead and selenium, as noted above, show an analytical deficiency. Since the results

reported for lead and selenium in the samples listed above are nondetected, false negatives may exist.

The post-digestion analytical spike recovery result of 50% in duplicate sample MYX293 for selenium also did not meet the 85-115% criteria for accuracy.

Arsenic, lead, selenium and thallium were analyzed by the graphite furnace atomic absorption (GFAA) technique, which requires that a post-digestion analytical spike be performed for each sample to establish the accuracy of the individual analytical determination.

ANALYTICAL RESULTS

Page 1 of 2

Case No.: 25218 Memo #04

TABLE 1A

Site: Victoria Golf Course

Lab.: Analytical Resources, Inc. (ARI)

Analysis Type: Low Concentration Groundwater

Reviewer: Dina David-Bailey, ESAT/Lockheed

Samples for Total Metals

Date: February 14, 1997

Concentration in µg/L

Station Location	GW-1-1			GW-3-1			GW-5-1			GW-13-1			GW-14-1			GW-28-1			Lab Blank		
Sample I.D.	MYX291			MYX293 BG			MYX295 D1			MYX301 EB			MYX302 EB			MYX334 D1					
Date of Collection	12/13/96			12/11/96			12/11/96			12/10/96			12/11/96			12/11/96					
Parameter	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com	Result	Val	Com
Aluminum	115 L	J	AB	20.0 U			20.0 U			20.0 U			20.0 U			27.7 L	J	A	20.0 U		
Antimony	50.0 U	J	B	50.0 U			50.0 U			50.0 U			50.0 U			50.0 U			50.0 U		
Arsenic	1.0 U	J	B	1.0 L	J	A	1.7 L	J	A	1.0 U			1.0 U			1.7 L	J	A	1.0 U		
Barium	92.6 L	J	AB	42.1 L	J	A	325			1.0 U			1.0 U			339			2.6 L	J	A
Beryllium	1.0 U	J	B	1.0 U			1.0 U			1.0 U			1.0 U			1.0 U			1.0 U		
Cadmium	2.0 U	J	B	2.0 U			2.0 U			2.0 U			2.0 U			2.0 U			2.0 U		
Calcium	314000	J	B	173000			99700			119 L	J	A	32.6 L	J	A	106000			20.0 U		
Chromium	5.0 U	J	B	5.0 U			5.0 U			5.0 U			5.0 U			5.0 U			5.0 U		
Cobalt	3.0 U	J	B	3.0 U			3.0 U			3.0 U			3.0 U			3.0 U			3.0 U		
Copper	2.0 U	J	B	5.8 L	J	A	2.0 U			3.7 L	J	A	2.0 L	J	A	2.0 U			2.0 U		
Iron	5960	J	B	20.0 U			20.0 U			20.0 U			20.0 U			20.0 U			20.0 U		
Lead	1.0 U	J	B	1.0 U	J	D	1.0 U			1.0 U	J	D	1.0 U	J	D	1.0 U			1.0 U		
Magnesium	82400	J	B	45000			38000			20.0 U			20.0 U			40900			20.0 U		
Manganese	1400	J	B	411			419			1.7 L	J	A	1.3 L	J	A	451			1.1 L	J	A
Mercury	0.10 U	J	B	0.10 U			0.10 U			0.10 U			0.10 U			0.10 U			0.10 U		
Nickel	20.7 L	J	AB	10.0 U			10.0 U			10.0 U			10.0 U			10.0 U			10.0 U		
Potassium	15000	J	B	8570			7730			400 U			400 U			7580			400 U		
Selenium	1.0 U	J	BC	1.0 U	J	CD	1.0 U	J	C	1.0 U			1.0 U			1.0 U	J	C	1.0 U		
Silver	3.0 U	J	B	3.0 U			3.0 U			3.0 U			3.0 U			3.0 U			3.0 U		
Sodium	371000	J	B	418000			78100			324 L	J	A	253 L	J	A	83400			99.1 L	J	A
Thallium	1.0 U	J	B	1.0 U			1.0 U			1.0 U			1.0 U			1.0 U			1.0 U		
Vanadium	9.6 L	J	AB	5.7 L	J	A	6.0 L	J	A	3.0 L	J	A	3.8 L	J	A	4.6 L	J	A	3.7 L	J	A
Zinc	44.6	J	B	18.3 L	J	A	4.9 L	J	A	6.1 L	J	A	4.3 L	J	A	9.8 L	J	A	4.3 L	J	A

Val-Validity. Refer to Data Qualifiers in Table 1B.

Com.-Comments. Refer to the Corresponding Section in the Narrative for each letter.

IDL-Instrument Detection Limit.

N/A-Not Applicable, NA-Not Analyzed

D1, D2, etc. -Field Duplicate Pairs

FB-Field Blank, EB-Equipment Blank, TB-Trip Blank, BG-Background Sample

CRDL-Contract Required Detection Limit

TABLE 1B

DATA QUALIFIER DEFINITIONS FOR INORGANIC DATA REVIEW

The definitions of the following qualifiers are prepared in accordance with the document "USEPA Contract Laboratory Program National Functional Guidelines for Inorganic Data Review," February, 1994.

- U The analyte was analyzed for, but was not detected above the level of the reported value. The reported value is either the sample quantitation limit or the sample detection limit for all the analytes except Cyanide (CN) and Mercury (Hg). For CN and Hg, the reported value is the Contract Required Detection Limit (CRDL).
- L Indicates results which fall between the sample detection limit and the CRDL. Results are estimated and are considered qualitatively acceptable but quantitatively unreliable due to uncertainties in the analytical precision near the limit of detection.
- J The associated value is an estimated quantity. The analyte was analyzed for and was positively identified, but the reported numerical value may not be consistent with the amount actually present in the environmental sample.
- R The data are unusable. The analyte was analyzed for, but the presence or absence of the analyte can not be verified.
- UJ A combination of the "U" and the "J" qualifier. The analyte was analyzed for but was not detected. The reported value is an estimate and may be inaccurate or imprecise.

TPO: ☒ FYI ☐ Attention ☐ Action

Region 9

INORGANIC REGIONAL DATA ASSESSMENT

CASE NO. 25218 Memo #04 LABORATORY ARI
 SDG NO. MYX293 SITE NAME Victoria Golf Course
 SOW NO. ILM04.0 REVIEW COMPLETION DATE February 14, 1997
 REVIEWER ☐ ESD ☒ ESAT REVIEWER'S NAME Dina David-Bailey
 NO. OF SAMPLES: WATER 6 SOIL _____ OTHER _____

	ICP	GFAA	Hg	Cyanide
1. PRESERVATION AND HOLDING TIMES	<u>X</u>	<u>X</u>	<u>X</u>	_____
2. CALIBRATION	<u>O</u>	<u>O</u>	<u>O</u>	_____
3. BLANKS	<u>O</u>	<u>O</u>	<u>O</u>	_____
4. ICP INTERFERENCE CHECK SAMPLE (ICS)	<u>O</u>			
5. LABORATORY CONTROL SAMPLE (LCS)	<u>O</u>	<u>O</u>	<u>N/A</u>	_____
6. DUPLICATE ANALYSIS	<u>O</u>	<u>O</u>	<u>O</u>	_____
7. MATRIX SPIKE ANALYSIS	<u>O</u>	<u>X</u>	<u>O</u>	_____
8. METHOD OF STANDARD ADDITION (MSA)		<u>N/A</u>		
9. ICP SERIAL DILUTION	<u>O</u>			
10. SAMPLE QUANTITATION	<u>O</u>	<u>O</u>	<u>O</u>	_____
11. SAMPLE VERIFICATION	<u>O</u>	<u>O</u>	<u>O</u>	_____
12. GFAA ANALYTICAL SPIKE		<u>X</u>		
13. OVERALL ASSESSMENT	<u>X</u>	<u>X</u>	<u>X</u>	_____

O = Data have no problems or problems that do not affect data quality.
 X = Data are qualified due to minor problems.
 M = Data are qualified due to major problems.
 Z = Data are unacceptable.
 N/A = Not Applicable.

TPO ACTION: None.

TPO ATTENTION: None.

AREAS OF CONCERN: None.

In Reference to Case No(s)..
25218 Memo #04

Contract Laboratory Program
REGIONAL/LABORATORY COMMUNICATION SYSTEM

Telephone Record Log

Date of Call: February 6, 1997
Laboratory Name: Analytical Resources, Inc. (ARI)
Lab Contact: Jeff J. Reitan
Region: 9
Regional Contact: Dina David-Bailey, ESAT/Lockheed
Call Initiated By: Laboratory X Region

In reference to data for the following sample delivery group(s):
SDG No. MYX293 (Groundwater samples for Total Metals)

Summary of Questions/Issues Discussed:

1. The laboratory indicated in the case narrative that sample MYX291 was received unpreserved. Please provide the actual measured pH value in sample MYX291.
2. Please explain why the matrix spike samples for arsenic and thallium were initially analyzed at a two-fold dilution, while the unspiked sample was not.
3. Did the laboratory call the Region regarding the selection of sample MYX293 for QC analysis? Sample MYX293 was not specified for laboratory QC analysis on the chain-of-custody form.
4. The case narrative incorrectly indicates that sodium in samples MYX293 and MYX293D was reported from a 5-fold dilution. Raw data and the Form 14 indicate a dilution factor of two. Please revise the case narrative and resubmit.

Summary of Resolution:

1. The laboratory used a pH paper but did not record the measured pH in sample MYX291. In the future, the laboratory will make an effort to record pH values greater than 2.
2. Due to high spike levels, the matrix spike samples for arsenic and thallium were diluted in order to quantitate near midpoint of the calibration curve.
3. The laboratory did not call the Region regarding the selection of sample MYX293 for laboratory QC analysis but will call in the future.
4. The corrected case narrative was resubmitted.

Dina David-Bailey
Signature

2-14-97
Date

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy

Contract Laboratory Program
REGION 9/LABORATORY COMMUNICATION SYSTEM
CSF COMPLETENESS EVIDENCE AUDIT PROGRAM
Telephone Communication Summary Form

AUDIT NO.: 2/97/11 LAB CONTACT: Jeff J. Reitan
CASE NO.: 25218 Memo #04 LAB CODE: ARI
SDG NO.: MYX293 LAB NAME: Analytical Resources, Inc.
FILENAME: 25218M04.TCS LAB LOCATION: Seattle, WA

Summary of Questions/Issues Discussed:

The following items were noted during the case audit of Case 25218/SDG MYX293. Please respond within 10 calendar days of receipt of this Telephone Communication Summary Form by submitting copies of the corrected forms or documenting the corrections in a memorandum or amended case narrative.

1. The Lab column was not checked for the presence of Item 1, Inventory Sheet (DC-2).
2. The page numbers for Item 24, Preparation Logs Raw Data, should range from page 0299 to 0301 instead of page 0299 to 0302. Consequently, the Airbill entry in Item 27, EPA Shipping/Receiving Documents, should list the beginning page as 0302 instead of page 0303. Page 0302 is the cover page for the EPA Shipping/Receiving Documents.
3. Two pages of the ICP raw data were marked as page 94 and no page 96 was found. The auditor designated the ICP raw data for sample MYX293S as page 94, sample MYX295 as page 95, and sample MYX302 as page 96.

Summary of Resolution:

- 1.-2. The laboratory corrected and resubmitted a copy of the Form DC-2.
3. The laboratory noted and agreed with the auditor.

Alexandra David-Barley for MW
Auditor, ESAT/Lockheed

January 31, 1997
Date of Contact

Distribution: (1) Lab Copy, (2) Region Copy, (3) CLASS Copy

C

Contact Log

CONTACT LOG

Site: Victoria Golf Course

EPA ID: CAD 980818926

Name	Affiliation	Phone	Date	Information
Ryan Huston	Park Water Company	(562) 861-5902	05/29/98	The Park Water System consists of 97 percent imported water. The only system well (31A) within four miles of the site is inactive due to poor water quality.
Koby Cohen	Southern California Water Company	(310) 767-8212	06/02/98	The Southwest System supply is 20 percent groundwater and 80 percent from the Metropolitan Water District. The system serves a total population of 150,000 people. One well (17308 Dalton Ave.) is within four miles of the site. There are a total of 15 wells in the system.
Cheryl Ross	Central Basin Municipal Water District	(310) 660-6200	06/03/98	See Fax.
Mary	Water Replenishment District	(562) 921-5521	06/03/98	See Fax.

CONTACT LOG (Cont'd)

Site: Victoria Golf Course

Name	Affiliation	Phone	Date	Information
John Foth	Dominguez Water Corporation	(310) 834-2625	06/04/98	The Dominguez Water Corporation maintains a water supply system that serves 125,000 people. Fifty percent of the total water supply is from 12 active wells. The remaining fifty percent is purchased from the Metropolitan Water District. Nine of the production wells are within 4 miles of the site. The amount of groundwater supplied from each groundwater well is approximately equal.
Jerald Frison	City of Compton	(310) 605-5524	06/05/98	The City of Compton has a blended drinking water system that serves approximately 52,000 people. Fifty-five percent of the water supply is from eight groundwater wells and 45 percent is purchased from the MWD. Two wells are within four miles of the site. The eight groundwater wells contribute about equally to the water supply.

CONTACT LOG (Cont'd)

Site: Victoria Golf Course

Name	Affiliation	Phone	Date	Information
Sandy Schaper	City of Torrence	(310) 618-6285	06/05/98	City of Torrance has a blended drinking water system that serves approximately 95,000 people. Ten percent of the water supply is from two active wells and 90 percent is purchased from the MWD. The two wells are located between 3 and 4 miles of the site. The groundwater wells supply 43 and 57 percent of the total groundwater supply, respectively. See Fax.
Koby Cohen	Southern California Water Company	(310) 767-8212	06/09/98	The Southern California Water Company's Southwest System is a blended drinking water supply system that serves approximately 150,000 people. The system is supplied with drinking water through 15 active groundwater wells, one of which is within 4 miles of the site (03S/14W-25P04 at 17308 Dalton Avenue). Twenty percent of the total water supply is from groundwater and the remaining 80 percent is purchased from the MWD. Generally, the wells contribute equally to the groundwater system.

FUNDING SOURCES FOR COMMUNITIES

Grant Program	Superfund Technical Assistance Grants (TAGs)	Environmental Justice Community/University Partnership (CUP)	Sustainable Development Challenge Grants (SDCG)	Environmental Education (EE)
Purpose	To enable communities affected by a site on the Superfund National Priorities List (NPL) to obtain technical assistance in interpreting information regarding the site.	To help community groups efficiently address local environmental justice issues through active partnerships with institutions of higher education.	To encourage community groups, businesses, & government agencies to work together on sustainable development efforts that protect the local environment & conserve natural resources while supporting a healthy economy and an improved quality of life.	To provide financial support for projects which design, demonstrate or disseminate environmental education practices, methods or techniques.
Eligible Applicants	Groups must be located near or affected by a site that is either proposed for or on the National Priorities List. Groups must incorporate as nonprofit organizations.	Institutions of higher education which have formal partnerships with one or more community group(s).	-Incorporated nonprofits - Local governments (cities and counties) - Tribes - Educational Institutions - States, Territories, and Possessions (Eligible but encouraged to partner with community groups).	Local, tribal, or state education agencies, colleges & universities, nonprofit organizations, state environmental agencies, & non-commercial educational broadcasting agencies.
Award Amount	Up to \$50,000 initially; in the case of complex sites, additional funds may be available.	Up to \$250,000	Two funding categories: 1. \$50,000 or less 2. \$50,001 to \$250,000	Most awards are for \$5000. Occasionally up to \$25,000.
Total Awarded in Fiscal Year	\$150,000 Regionally in FY97	\$2 million nationally in FY96 \$1.5 million expected in FY97	\$5,000,000 nationally in FY97	\$200,000 Regionally in FY97
Matching Share	20% matching share required; In-kind contributions may be used to meet this match.	No matching share required.	20% matching share required in FY97.	25% matching share required.
Key Dates: - Application Due - Selection	Applications may be submitted after a site is proposed for listing on the NPL.	Due: March 1997 Selection: August 1997	Applications due 8/15/97	Due: November 15 1997 Selection: Spring 1998
Priorities	<ul style="list-style-type: none"> Because only one grant is available for each NPL site, EPA encourages groups to consolidate in order to provide technical assistance to the most widely representative group of individuals possible. To this end, EPA notifies the community via a public notice in the local newspaper if an application is received from an eligible group. 	<p>EPA will emphasize meaningful, fully interactive two-way cooperation between communities and institutions of higher education to:</p> <ul style="list-style-type: none"> address environmental justice issues, identify pollution sources, train residents on their rights and responsibilities, help resolve environmental problems. <p>Through these partnerships, communities will be encouraged to become involved in accessing information from environmental databases, in cleaning up & restoring communities that have environmental problems & in surveying & monitoring environmental quality.</p>	<p>EPA is looking for projects that:</p> <ul style="list-style-type: none"> use proactive, innovative approaches to protect the environment while providing economic benefits. are supported by and involve diverse interests in the community. have measurable environmental and economic results. foster long-term investments in local sustainability efforts. <p>To receive application kits, call (202) 260-6812 or fax to (202) 260-2555. To access application kis via the Internet: http://www.epa.gov/ecocommunity</p>	<p>Applicants must demonstrate how the proposed project has the potential for wide application and addresses a high priority environmental issue. Projects MUST focus on ONE of the following:</p> <ul style="list-style-type: none"> improving environmental education teaching skills; or educating teachers, students or the public about human health problems; or building state, local or tribal government capacity to develop environmental education programs; or promoting environmental careers among students; or educating the community through a community-based organization; or educating the general public through print, film, broadcast or other media.
Contact Person EPA Office/Division	Carmen White Superfund Division	Mustafa Ali	Debbie Schechter Cross Media Division	Stacey Benfer Office of External Affairs
Telephone Number Email Address	415 744-2183 white.carmen@ epamail.epa.gov	202 564-2606 ali.mustafa@ epamail.epa.gov	415 744-1624 schechter.debbie@ epamail.epa.gov	415 744-1161 benfer.stacey@ epamail.epa.gov

December 1997

FUNDING SOURCES FOR COMMUNITIES

United States Environmental Protection Agency - Region IX

75 Hawthorne Street, San Francisco, CA 94105

This list is also found on the Web at: <http://www.epa.gov/region09/funding/index.html>

Grant Program	Environmental Justice (EJ)	Environmental Justice through Pollution Prevention (EJP2)	Pollution Prevention Incentives for States (PPIS)	Brownfields Assessment Demonstration Pilots	U.S./Mexico Border Project Grants
Purpose	To provide financial assistance to eligible community groups, & federally recognized tribal governments that are working on or plan to carry out projects to address environmental justice issues.	To empower low income, minority communities through education on environmental issues & to provide pollution prevention resources for addressing these issues.	To build and support state pollution prevention (P2) capabilities and to test, at the state level, innovative pollution prevention approaches and methodologies	EPA's Brownfields Initiative will empower States, communities, & other stakeholders in economic redevelopment to work together in a timely manner to prevent, assess, safely cleanup, & sustainably reuse Brownfields.	These grants will further EPA's efforts toward implementing the Border XXI Program. Border XXI is a new and innovative binational effort which brings together diverse U.S. and Mexican federal and state entities to work cooperatively toward sustainable development.
Eligible Applicants	Any affected community group, church, school, educational institution, non-profit organization, university, or tribal government. Organizations must be incorporated.	Any nonprofit organization incorporated under IRS tax code 501(c)(3), federally recognized Indian tribal government, state, city, county or local government organization.	State agencies, federally-recognized tribes, territories & possessions. States are encouraged to form partnerships with other P2 providers.	States, cities, towns, counties, U.S. Territories, & Indian tribes are eligible to apply.	Cities, counties, towns, councils of governments, local independent agencies, non-governmental organizations, universities, and Tribes.
Award Amount	Up to \$20,000 per grant	Up to \$100,000 per grant	Up to \$200,000 per grant.	Up to \$200,000 per grant over 2 years	Up to \$40,000 per grant over 1 year
Total Awarded in Fiscal Year	\$3 million nationally or about \$300,000 Regionally in FY96	\$1.5 million nationally in FY96	\$550,000 Regionally in FY97	\$20 million in FY98	Approximately \$500,000 expected nationally in FY97
Matching Share	No matching share required.	For \$50,000 or less, none for requests between \$50,000 - \$100,000, 10% matching share required.	50% matching share required.	No matching share required.	5% matching share (in dollars or in-kind services) required.
Key Dates: - Application Due - Selection	Due: Spring 1998 Selection: Summer 1998	Due: Spring 1998 Selection: Summer 1998	Due: Feb. 1, 1998 Selection: July 1998	Due: Dec. 15, 1997 and March 23, 1998 Selection: 1998	Pre-Proposals due: Call for 1998 due date
Priorities	Applications will meet 2 of the following 3 goals: 1) Facilitate communication & info exchange and create partnerships among stakeholders to address disproportionate, high & adverse environmental exposure. 2) Build community capacity to identify local environmental justice problems & involve the community in the design and implementation of activities to address these concerns. 3) Enhance community understanding of and access to environmental and public health information systems (e.g. Toxic Release Inventory and Geographic Information Systems).	<ul style="list-style-type: none"> Projects by community based organizations & local governments that improve the environmental quality of affected communities using pollution prevention as a primary solution. Proposals that encourage institutionalization & innovative use of pollution prevention as the preferred approach for addressing environmental justice issues, & whose activities and products can be supplied to other communities. 	<ul style="list-style-type: none"> Funds awarded must be used for programs that prevent the transfer of pollutants across all environmental media: air, water and land. Funded activities might include: providing direct technical help to businesses, collecting and analyzing data, conducting outreach activities and identifying regulatory and non-regulatory barriers & incentives to pollution prevention. Partnerships between State agencies and other P2 assistance providers are encouraged. 	<ul style="list-style-type: none"> Pilots are to test cleanup and redevelopment planning models, direct special efforts toward removing regulatory barriers without sacrificing protectiveness, and facilitate coordinated cleanup and development efforts at the federal, state and local level. Encourages community groups, investors, lenders, developers, & other affected parties to join forces & develop creative solutions to assess & clean up contaminated sites & return them to productive use. 	<ul style="list-style-type: none"> Projects selected will emphasize application of community-based and regional approaches to meeting the goals of sustainable development, capacity-building, and coordination among key participants in addressing border (including bi-national) environmental issues.
Contact Person EPA Office/Division	Katy Wilcoxon Env. Justice Team	Eileen Sheehan P2 Team	Bill Wilson P2 Team	Bobbie Kahan Brownfields Team	Pam Teel HQ International Activities
Telephone Number E-Mail Address	415 744-1565 wilcoxon.katy@epamail.epa.gov	415 744-2190 sheehan.eileen@epamail.epa.gov	415 744-219 2 wilson.bill@epamail.epa.gov	415 744-2191 kahan.bobbie@epamail.epa.gov	202 260-4896 teel.pam@epamail.epa.gov

December 1997

This information is NOT a substitute for each program's Federal Register or Solicitation Notice and regional guidance.

FUNDING SOURCES FOR COMMUNITIES

Grant Program	Childhood Lead Poisoning Prevention (CLPP)	Climate Change Action Plan	Solid Waste Management Assistance (SWMA)	Pesticide Environmental Stewardship Program (PESP)	State Wetlands Protection Grants
Purpose	This grant program funds innovative projects and approaches to prevent lead poisoning in children.	This grant program funds proposals focusing on source reduction, recycling and composting	This grant program provides money for demonstration and educational projects that promote effective integrated solid waste management.	PESP provides funds for research, education, and demonstration of reduced risk pest control techniques and products, in both agricultural and non-agricultural settings.	Assist state, tribal & local wetlands protection efforts. Funds can be used to develop new wetlands protection programs or refine existing protection programs.
Eligible Applicants	Nonprofit entities and local governments.	States, Tribes, Incorporated nonprofits, Universities.	Nonprofit entities, government agencies & Indian tribes.	State agencies only	State and tribal agencies, local governments, and conservation districts.
Award Amount	No greater than \$18,000 per grant.	Variable - Past awards range from \$50,000-\$250,000	Limited funds available; typical award less than \$50,000.	\$30,000 in FY98	Variable.
Total Awarded in Fiscal Year	\$95,000 available in FY97	Formal program began in FY96	\$185,000 awarded Regionally in FY96	FY96: \$117,000 awarded in Region 9 through national competition (\$498,000 awarded nationally)	Awarded \$1,800,000 in FY 96 regionally..
Matching Share	No matching share required.	No matching share required.	No matching share required.	15% matching share required.	25% matching share required.
Key Dates: Application Due Selection	Due: June 1998 Selection: September 1998	Call for dates.	Call for dates.	Spring 1998	Due: December 1, 1997 Selection: March 1998
Priorities	Applicants will meet at least two of the four program goals: <ul style="list-style-type: none"> Develop lead poisoning prevention education efforts (workshops & stakeholder committees) Build community capacity to increase awareness of sources of lead exposure and means of prevention Enhance community access to local data. Conduct educational activities that increase the community's capacity to reduce residential lead exposure. 	<ul style="list-style-type: none"> Emphasis placed on measurability of projects, in terms of volumes of waste reduced to be translated into greenhouse gas reductions. 	<ul style="list-style-type: none"> Encourages the development of innovative processes for realizing integrated waste management. Funded activities might include: source reduction, reuse, recycling, or composting demonstration or educational projects. Partnerships are encouraged. Measurable results related to waste reduction and resource conservation are desirable. 		<ul style="list-style-type: none"> Wetland/Watershed protection demonstration projects River corridor and wetland restoration projects Wetland conservation plans Regulatory programs assessment and monitoring wetland assessment models American Wetlands Month activities
Contact Person EPA Office/Division	Max Weintraub Cross Media Division	Jessica Gaylord Waste Mgmt. Division	Julia Wolfe Waste Mgmt. Division	Roccena Lawatch Pesticides Program	Suzanne Marr Water Division
Telephone Number E-Mail Address	415 744-1129 weintraub.max@epamail.epa.gov	415 744-2122 gaylord.jessica@epamail.epa.gov	415 744-2131 wolfe.julia@epamail.epa.gov	415 744-1068 lawatch.roccena@epamail.epa.gov	415 744-1974 marr.suzanne@epamail.epa.gov

December 1997

For other funding information, see also the following WWW site: <http://www.epa.gov/ogd>

FUNDING SOURCES FOR COMMUNIT

Grant Program	Clean Water State Revolving Fund	Safe Drinking Water State Revolving Fund	Water Quality Assessment & Planning	Nonpoint Source Water Pollution Control
Purpose	Low-interest-loan program established by the federal Clean Water Act to make money available to local agencies for a wide range of water quality improvement projects. U.S. EPA provides funds to each State to establish ongoing loan programs. The State administers the SRF and makes loans for projects that address point and nonpoint sources of water pollution. In 1996, Congress expanded SRF to include a grant program to help rural and disadvantaged communities.	A new funding program established by the Safe Drinking Water State Act of 1996 to provide loans to ensure that drinking water remains safe and affordable. States will administer the program and may provide loan subsidies and loan forgiveness to disadvantaged communities. In addition, States may use a portion of these funds for prevention programs and projects that address source water protection, wellhead protection, and capacity development.	Established by the federal Clean Water Act §205/§604, these funds will support water quality assessment and planning projects which will lead to implementable actions that promote healthy aquatic ecosystems.	Established by the federal Clean Water Act §319, these funds are for the <u>implementation</u> of State nonpoint source pollution control programs. Each State "passes through" a portion of these funds to other entities for implementing specific NPS management practices.
Eligible Applicants	Public entities (e.g., municipalities, special districts) for construction of treatment facilities. Public and private entities are eligible for implementation of nonpoint source control projects, and for estuary protection plans.	Community water systems and non-profit non-community water systems are eligible.	State Water Quality Program Agencies with pass through to regional public comprehensive planning organizations.	Application and project selection for local "pass through" funds is conducted by the State water quality agency. Eligible applicants include nonprofits, local governments tribes, special districts, educational institutions, and government agencies.
Award Amount	\$500,000-\$40,000,000	No limit.	\$10,000 - \$150,000	Variable - Past awards range from \$20,000-\$300,000
Total Awarded in Fiscal Year	\$117,600,000 in FY96 \$55 million expected Regionally in FY97	Approximately \$100 million expected Regionally in FY97	\$460,000 Regionally in FY97	\$4,800,000 Regionally in FY97
Matching Share	20% non-federal match	20% non-federal match	Varies by State	40% non-federal match
Application Due Date (Approx.)	Open	Open	Varies	Varies
Grant Selection Announced	Varies	Varies	Varies	Varies
Priorities	<ul style="list-style-type: none"> Increase use of loans for innovative projects that address nonpoint source pollution. Encourage use as a potential primary financing sources for implementing community-based comprehensive watershed management. 	<ul style="list-style-type: none"> States will annually prepare intended use plans identifying eligible projects. 	<ul style="list-style-type: none"> An important goal of this funding program is to support projects which foster local watershed management efforts that protect and enhance environmental conditions. 	<ul style="list-style-type: none"> Solving priority water quality problems and/or protecting high quality waters. Comprehensive local watershed management Enhancing aquatic and riparian ecosystems Public education and outreach Collaboration and coordination among multiple interests. Commitments that lead to sustained water quality improvements volunteer monitoring
Contact Person	Juanita Licata Water Division	Jose Caratini Drinking Water Office	Cheryl McGovern Water Division	Sam Ziegler Water Division
Telephone Number	415 744-1948 licata.juanita@epaemail.epa.gov	415 744-1852 caratini.jose@epaemail.epa.gov	415 744-2013 mcgovern.cheryl@epaemail.epa.gov	415 744-1990 ziegler.sam@epaemail.epa.gov

December 1997

For other funding information, see also the following WWW site: <http://www.epa.gov/ogd>